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MISSOURI BOTANICAL GARDEN

BULLETIN

67-68

1979-80

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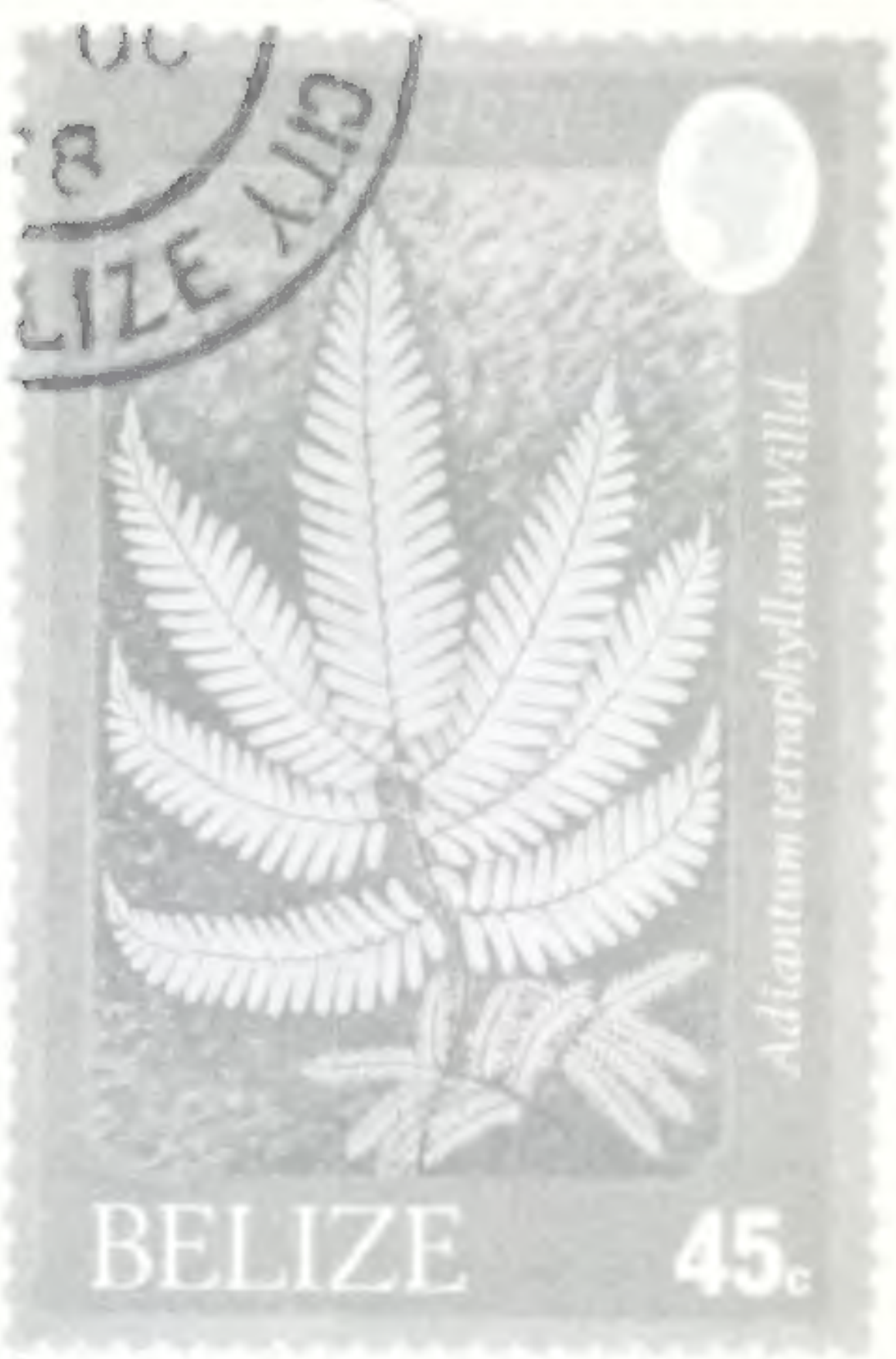


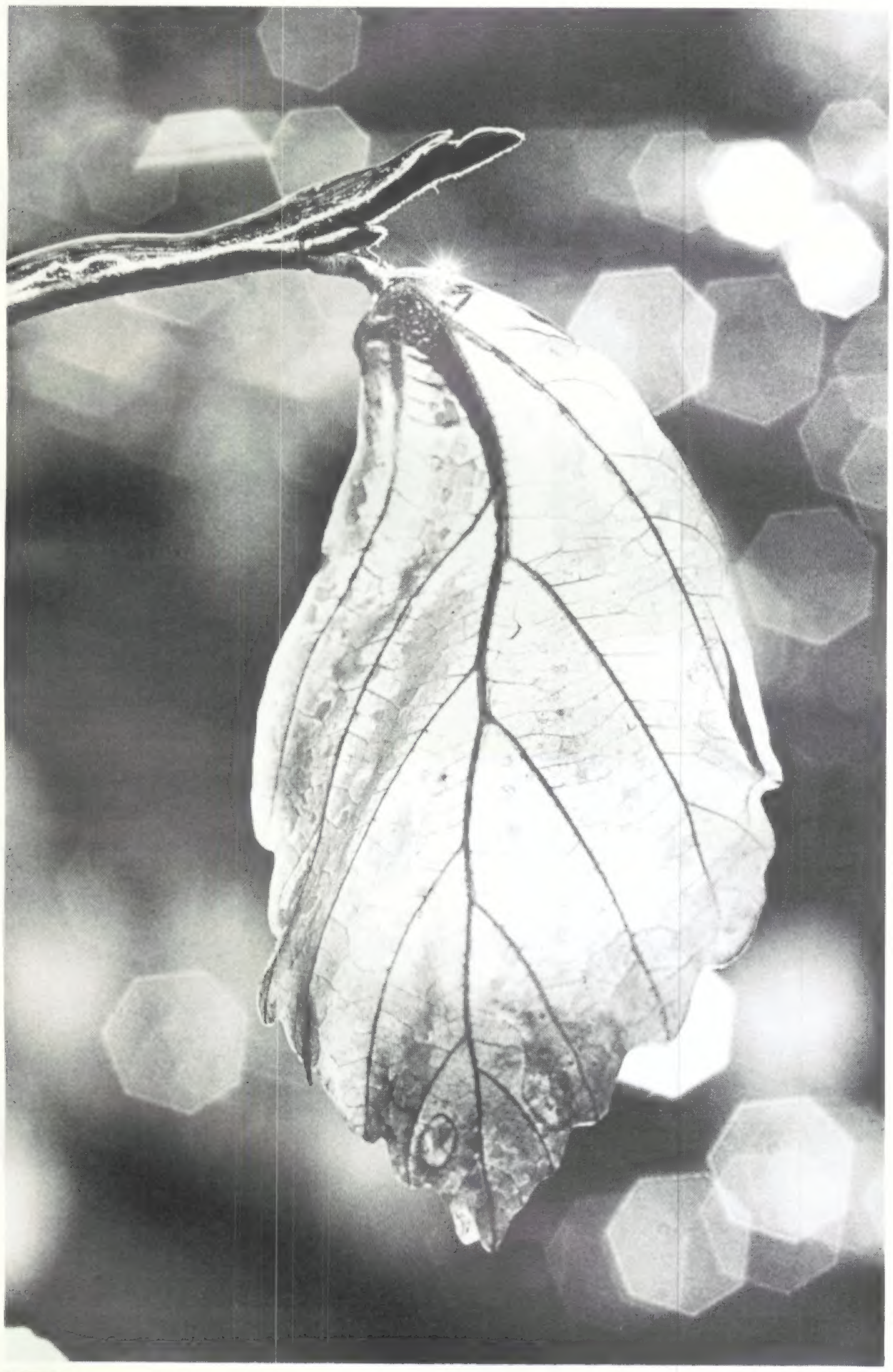
Botanical postage in Belize, see Page 3.

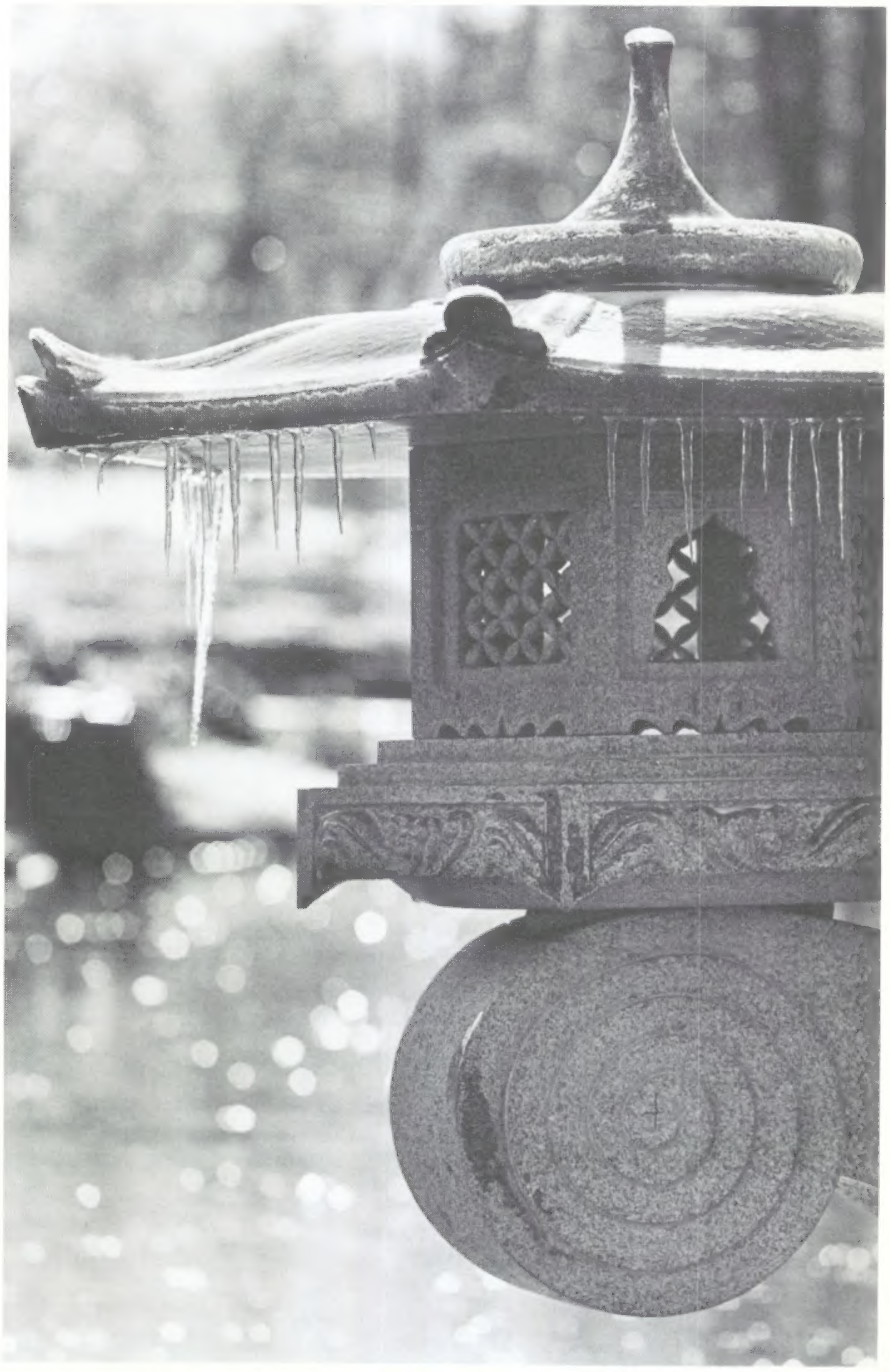
Rain Produces Winter Magic

Heavy rain followed by falling temperatures created a special kind of winter magic at the Garden in December. Ice-covered branches formed crystal ice sculptures. Highlighted by the sun, these sculptures formed a fantasy land of light, form and beauty.

The Garden is indeed a place for all seasons. Winter temperatures and conditions often provide the framework for unusual effects of nature.

Don't miss these special days at the Garden.





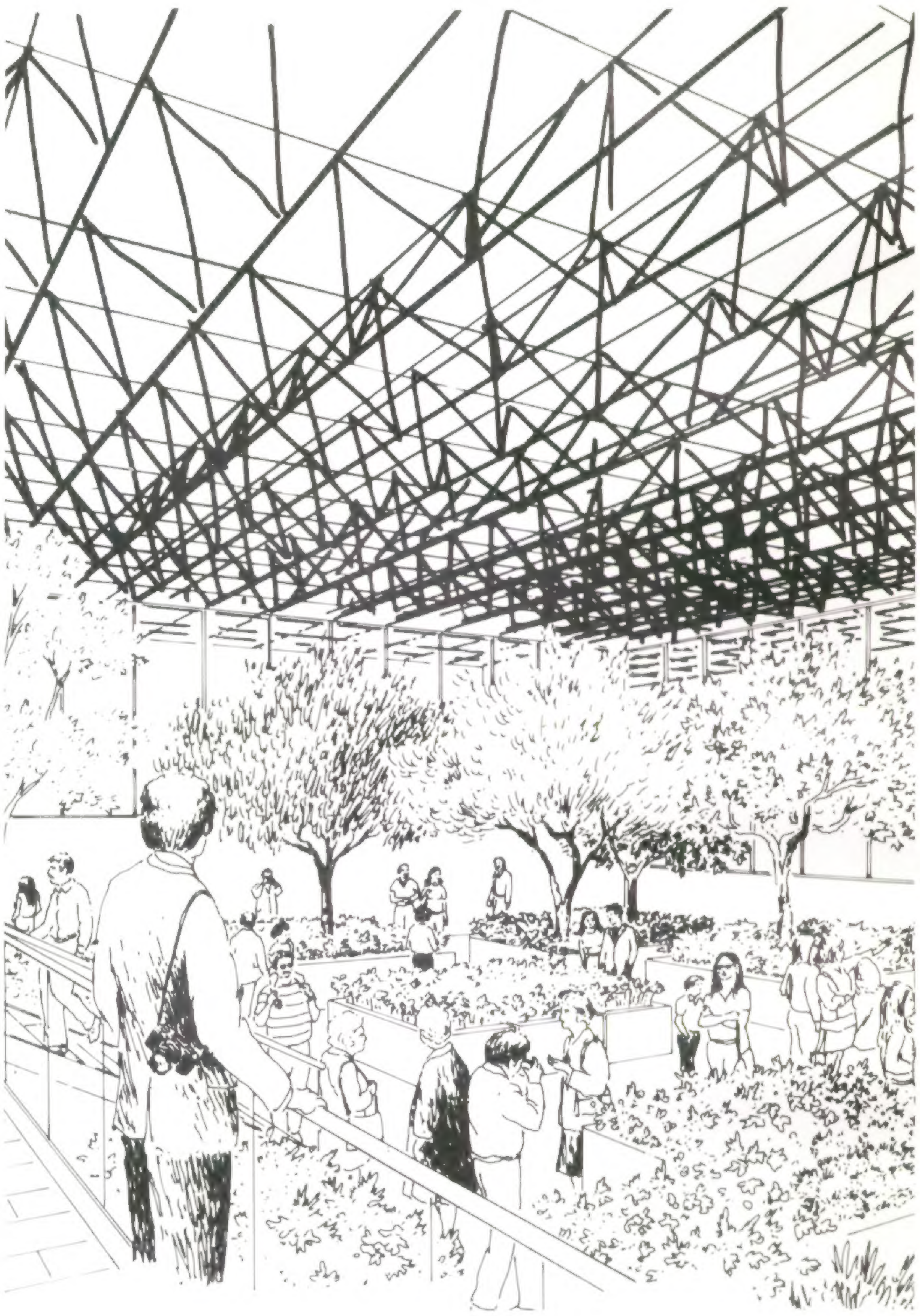
Volume LXVII Number 1
January 1979

January Decision Expected On Floral Display House

The fate of the Floral Display House, severely damaged by an unfortunate fire that occurred on November 10, 1978, is still undecided. The fire began in the restaurant area and spread rapidly, destroying the fiberglas roof of the House. The damage was covered by insurance. The extent of damage, however, makes it doubtful that the building, which was built in 1915, should be repaired and continue to be used for its present functions. The building has not been operated on a year-round basis, since its structure has made it difficult to provide for the climatic needs of the plant materials and the comfort of visitors, especially during the summer.

With these problems in mind, a new climate-controlled floral display hall has been planned as part of the new Education/Visitor Orientation Center. It is hoped that the Center will be completed within three years. The new floral display facility within it will improve the Garden's ability to expand and enlarge flower shows and to host the shows of local plant societies under greatly improved conditions. Better support facilities will be provided to facilitate the set-up and take-down of shows. Large plants in moveable containers will provide background and framework for them. Because of these improvements, it will be possible to provide more educational features as a part of all of these displays. The increased adjacent parking and ease of access to the new center with night lighting will encourage the presentation of evening programs.

According to Dr. Peter Raven, Garden director, the final determination whether to repair the damaged Floral Display House will be made in January. If a decision is made to await the completion of the new floral display hall rather than to make temporary repairs to the damaged one, alternate ways to present the Garden's flower shows during the next three years will be found. These plans will be discussed further in next month's *Bulletin.*



Members, Mark Your Travel Calendars!

Desert Trip:	March 24 through April 1
Scandinavia/ Russia Cruise:	June 12 through June 26
Ireland Castle and Garden Tour:	Sept. 20 through Sept. 28

Additional information is available. Please call the Members' office, 772-7600, extension 25.

Orchid Show Preview Party

Take a trip to the tropics to banish the winter doldrums!

Come to the Members' preview of the Orchid Show in the Climatron, scheduled for Friday evening, February 2, 1979, 5 to 7:30 p.m. This special evening is sponsored by Famous-Barr.

Tree Walk, Workshop

An indoor-outdoor educational program, concentrating on the winter identification of deciduous trees and shrubs, will be held on Saturday, February 3, from 10 a.m. to 2:30 p.m., at the Shaw Arboretum in Gray Summit, Mo.

The one-day program will include a brisk walk through portions of the Arboretum, providing the opportunity for practical experience in the recognition of trees by their twigs and winter profiles. Also considered will be the identification of conifers.

Instructor for the program will be Kenneth Peck. Participants are asked to bring a sack lunch; coffee will be provided. Registration fee is $8, or $6 for Garden members. In the event of inclement weather, the program will be held on Saturday, February 10.

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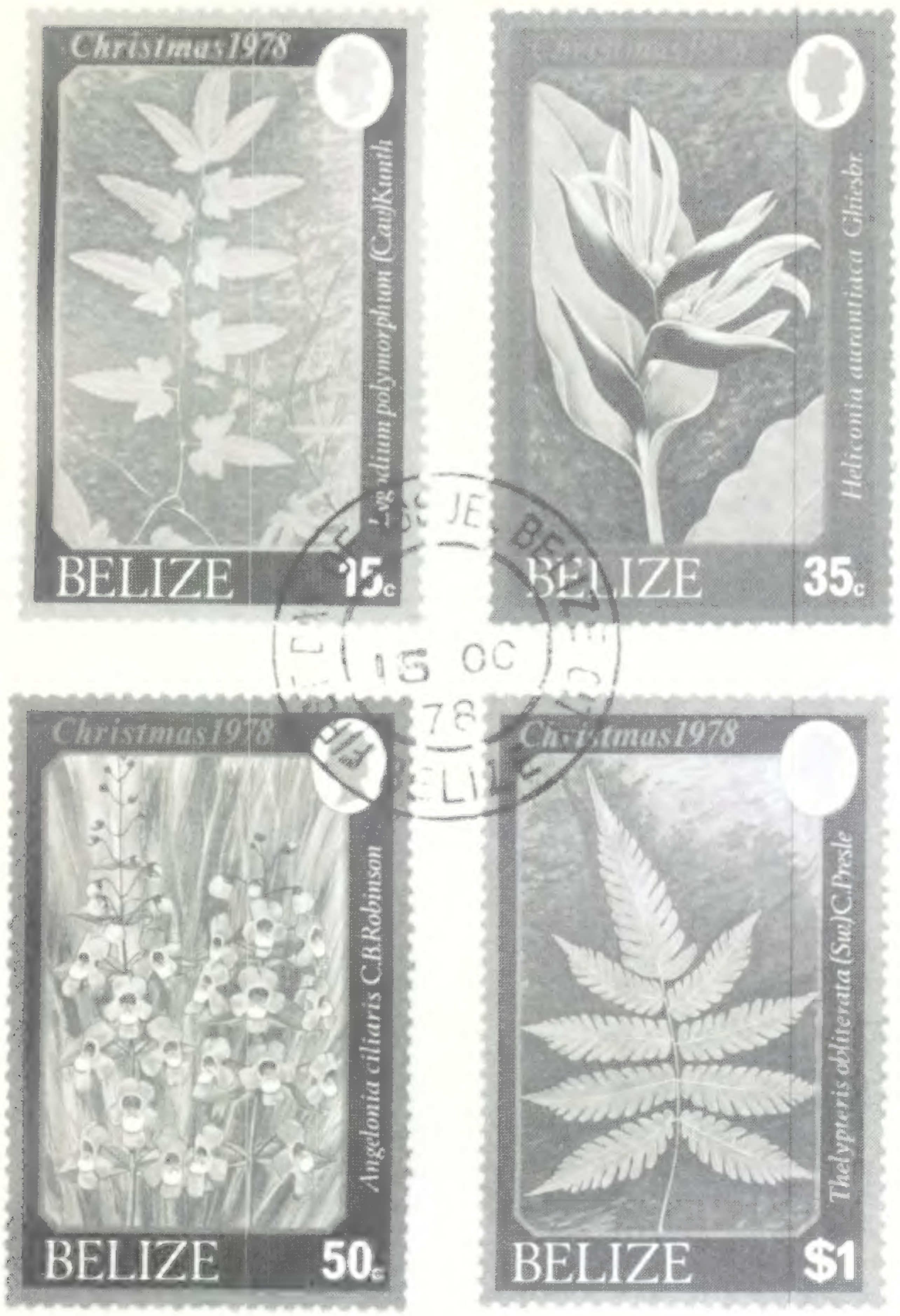
Horticultural Postage; The Stamps of Belize


Christmas 1978
Lygodium polymorphum (Cav.) Kunth
BELIZE 15c
Christmas 1978
Heliconia aurantiaca Ghiesbr.
BELIZE 35c
Christmas 1978
Angelonia ciliaris C.B.Robinson
BELIZE 50c
Christmas 1978
Thelypteris obliterata (Sw.) C.Presle
BELIZE $1
15 OC 78

Belize Christmas stamps depict native species, including, clockwise from upper left, Lygodium polymorphum *(Cav.) Kunth,* Heliconia aurantiaca *Ghiesbr.,* Thelypteris obliterata *(Sw.) C. Presle, and* Angelonia ciliaris *C.B. Robinson.*

Sparsely populated countries, with struggling economies, make an extra effort to issue postage stamps of unusual or unique design. The stamps can generate attention from the world and their sale serves to assist the economy of the country.

Belize (formerly British Honduras), a self-governing colony of the United Kingdom lying south of Yucatan, Mexico, and east of Guatemala, with a population of less than 150,000 and an area about as large as the State of Connecticut, is no exception. Over the past few years, especially in the period since self-government was achieved in 1967, the stamps of Belize have featured native fauna and flora, e.g., butterflies, vertebrate species, forest trees, etc.

Philatelists have given these issues an enthusiastic reception.

For the past Christmas season, a set of six stamps, featuring three species of flowering plants and three kinds of ferns, was issued. One of the flowering plants is the well-known *Heliconia aurantiaca,* a member of the banana family and a relative of *H. bourgeana,* one of the spectacular tropical plants to be found to the right of the main entrance of the Climatron.

The Garden has a strong interest in the flora of Belize, maintaining in the herbarium cases of the John S. Lehmann Building probably the largest collection of dried plants from that country of any institution in the world. This is due mainly to the efforts of several staff members: Doctors Thomas Croat, Alwyn Gentry, John Dwyer, and Gerrit Davidse, and Mr. Ron Liesner.

The Belize Philatelic Bureau, in a brochure announcing the issuance of the Christmas set, thanked Dr. Dwyer for identifying the ferns and flowering plants selected for the issue. The stamps are oversized, measuring 31.75 x 46.26 mm, and were lithographed by the House of Questa in England. Each stamp has in the upper right hand corner a profile view of Elizabeth II, Queen of England.

Tower Grove House

Tower Grove House soon will be resplendent with fresh paint and new wallpaper. Winter hours are 10 a.m. until 4 p.m. every day.

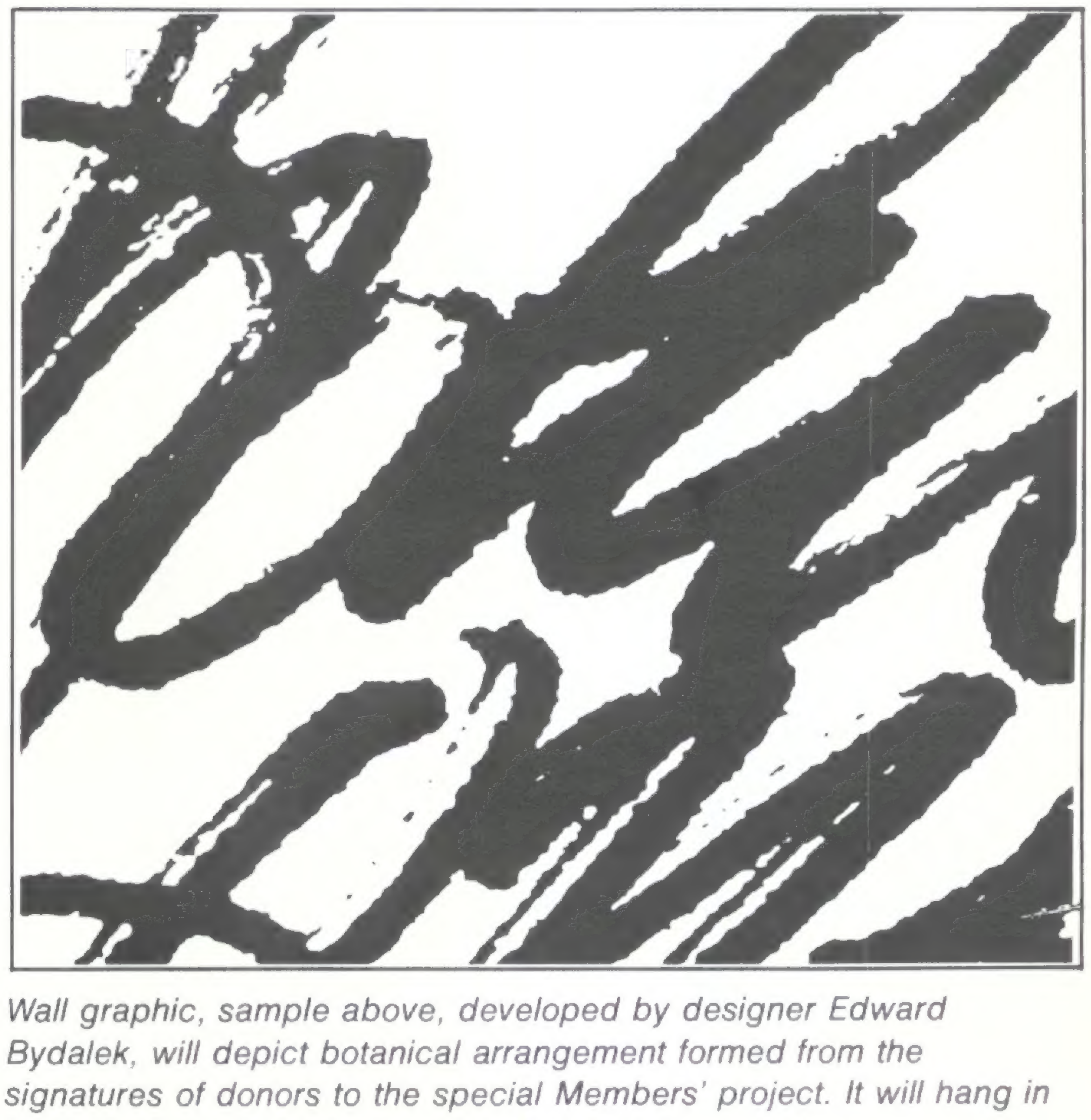
During the renovations the house will be closed to visitors from Tuesday, January 2, through Wednesday, January 31, 1979. The house and the tearoom will open on Thursday, February 1. Telephone your luncheon reservations during January, Monday through Friday, 8:30 a.m. to 4 p.m., 773-9000.

Members' Project

Sometime this month Members will be mailed a copy of the list of contributors to the Capital Campaign. Those on the list are eligible to submit their signatures for the Members' Project Graphic.

Please check the list to be certain your name has been included if you contributed to the Capital Campaign. If your name should be on the list, but is not, please call the development office.

Each signature submitted will be incorporated into the Graphic, which will be displayed in the new Education/Visitor Orientation Center.



Wall graphic, sample above, developed by designer Edward Bydalek, will depict botanical arrangement formed from the signatures of donors to the special Members' project. It will hang in the new Education/Visitor Orientation Center.

Folio Feast: A Very Rare Volume

One of the little known curiosities housed in the rare book collections of the Garden's research library is a small folio by the Rev. Richard Warner, with the imposing title *Antiquitates Culinariae; or Curious Tracts Relating to the Culinary Affairs of the Old English* (London 1791). After a lengthy introduction on the eating habits of Olde England's nobility, the Rev. Ware reproduces six tracts from the 14th, 15th, and 16th centuries on cooking, serving, and dining room etiquette.

In particular, there is an overwhelming account of the feast spread for the celebration of the enthronement of Archbishop Nevell in the year 1446. Included on the menu for these festivities were six wild bulls, 104 oxen, 2000 pigs, 200 pheasants, 3000 "playne dyshes of gelly," 4000 baked cold tarts, and 12 porpoises and seals.

Elsewhere in this book can be found recipes for porpoise in broth, roe-buck broth, fried spinach and other delectables no longer in common use. Useful tidbits are scattered throughout the text on methods of making two pieces of cooked meat stick together, preserving fresh fruits and making a variety of sauces for meat and vegetable dishes.

The importance of this book in the Garden library is not for its value to the chef, nor its value as a quaint conversation piece. Throughout the book are many annotations in the hand of Edward Lewis Sturtevant (1842-1898), a nineteenth century physician, botanist, agriculturist, cattle-breeder, researcher, writer and book collector. Dr. Sturtevant is perhaps best-known for his research on edible plants, and for his donation to the Garden of a large portion of his personal library, which forms the basis of the Garden's rare book collections.

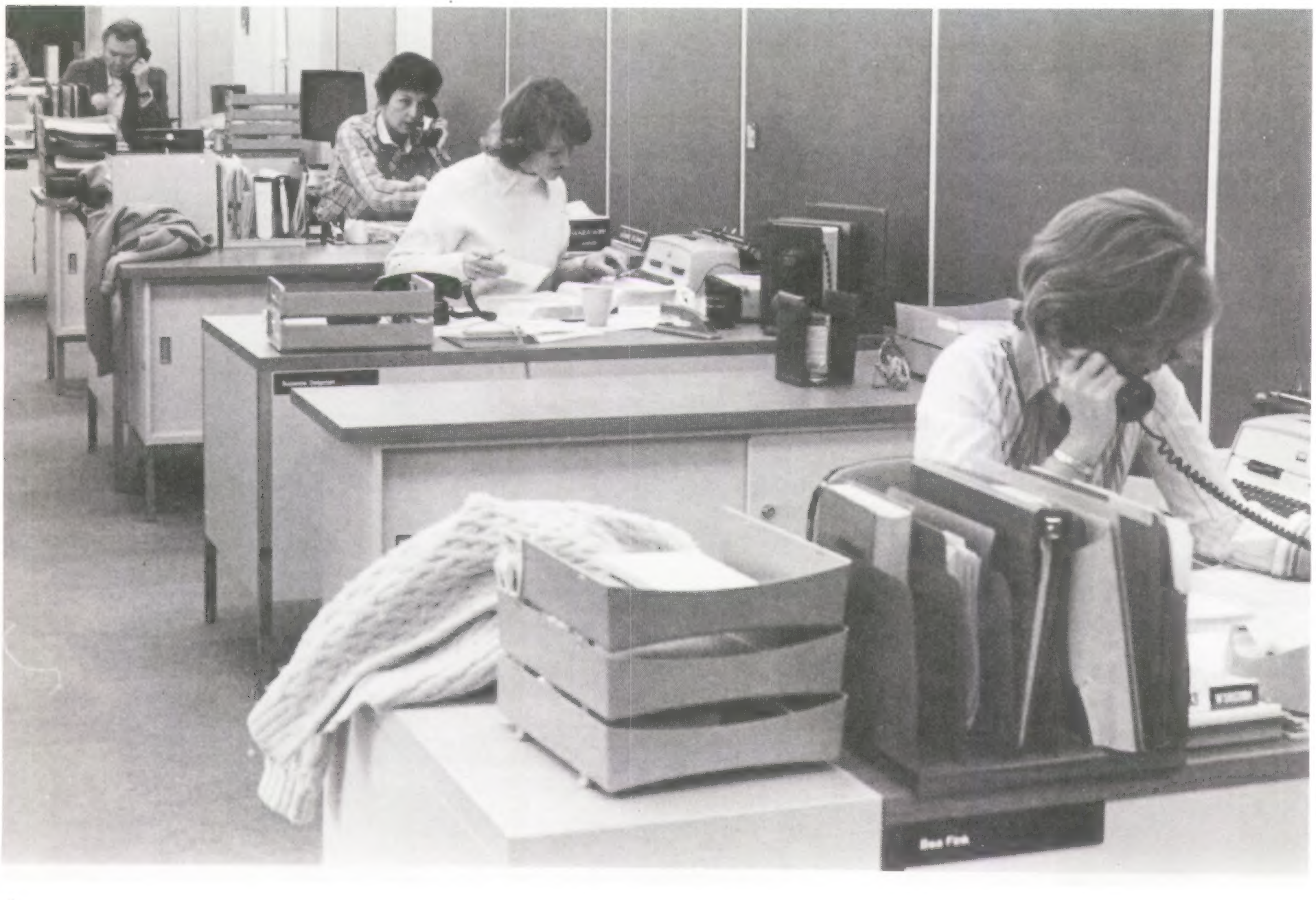
Dr. Sturtevant's annotations in *Antiquitates Culinariae* identify all the plants mentioned in the recipes and menus with a handwritten index to where these plants were cited in the text, thus making our copy of this scarce publication uniquely useful to the student of culinary history and the use of food plants in earlier periods. Only 250 copies of this book were published, and many of these were apparently destroyed as part of a legal settlement against the author for copyright violations.

–Jim Reed
Garden Librarian

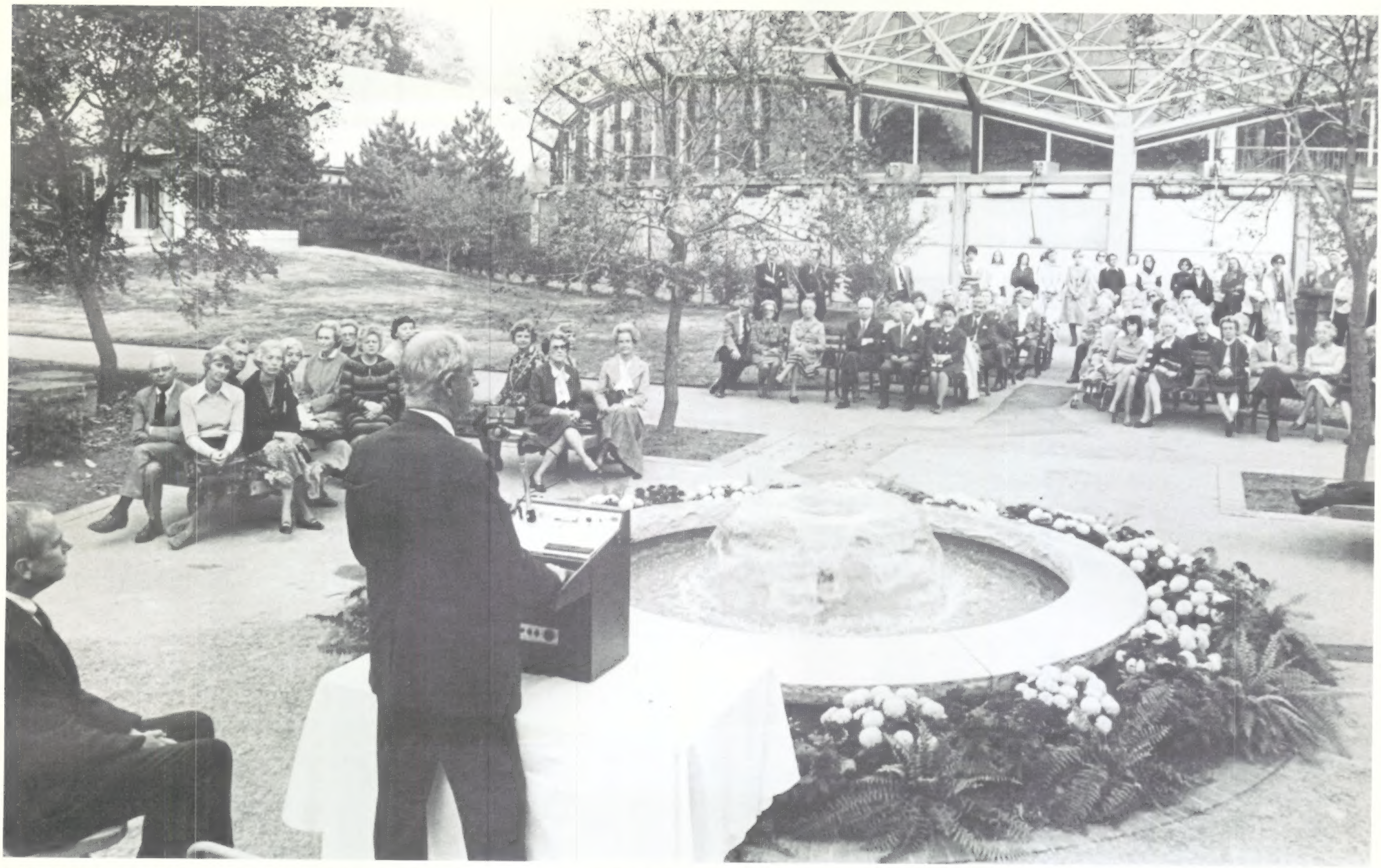
California Bookplate Exhibit

An exhibit of bookplates made by or for members of the Book Club of California will be on display in the lobby of the John S. Lehmann Building from January 2 through January 31, 1979. The exhibit is sponsored by the Garden's library.

The Book Club of California, founded in 1912, is a non-commercial, non-profit association of book lovers and collectors who share a common interest in the literature and history of the Pacific Coast, in the graphic arts and fine printing. The exhibit consists of 79 bookplates, each a unique design as well as an outstanding example of fine printing and graphic art. Exhibit hours will be 8:30 a.m. to 5 p.m., Monday through Friday.



GARDEN "OPEN LINE" – Garden volunteers man the telephone lines at Monsanto during the membership renewal campaign staged in November. On duty are, from right, Mrs. Judy Steffan, volunteer; Mrs. Nancy Lammers, executive secretary of the Members' Office; Mrs. Nora Stern, president of the Executive Board of the Members; and Arthur Dye, assistant Garden director. Also active in the campaign were Mrs. Anna Lea Kerckhoff, chairman; Mrs. Diane Garesche; Mrs. Charla Gray; Mrs. Gloria Kelly; Mrs. Ruth Minton; and Mrs. Susie Yoder.



STRIBLING FOUNTAIN DEDICATION – G. Carroll Stribling, at podium, presides at recent ceremonies dedicating the Garden's new Stribling Fountain. The fountain was named in honor of Mr. Stribling's late wife, Mrs. Frances Brightwell Stribling, a long-time Garden supporter and volunteer. Mrs. Stribling died in 1976.

Girl Scouts Gather To Trim The Trees For International Christmas Display

The beginning of a new year — time for new ideas, plans. Long winter evenings provide the leisure time to plan the garden, new plantings, introduction of new varieties. Seed and nursery catalogs should have arrived or will do so soon. New plant introductions will be featured in bright, glossy photographs — a sure cure for the winter doldrums!

After leafing through the seed and nursery catalogs, check out your notes from the past gardening season. Note any particular success and failure and what you want to stress this season. It is not too early to place seed orders. Cool weather crops can go in the ground early, so it's best to have seed on hand. Some annual seeds can be started inside, but it is early for most. Those started this early tend to become leggy before it is warm enough to get them outside.

Bulbs and Forcing

Check bulbs that were planted last fall for forcing. Bring them into a warm dark area until an inch or so of green is visible. Then place in a warm sunny window. Forced bulbs present a happy reminder that spring can't be so very far away.

Keep feeders filled for your feathered friends. Birds come to depend on feeders during this part of the winter so keep the supply constant. It is a good idea to offer suet as well.

Watch greenhouse ventilation on sunny days. Sun can quickly warm the greenhouse even though exterior temperatures may be very cold.

Holiday Plants

Take special care of holiday gift plants. Give them good light, but not direct sunlight. As new growth begins, mild feedings can begin again not only for gift plants but house plants as well. Washing the leaves of house plants with a warm water and mild soap solution will be beneficial. Dust will be removed, pores opened, plants will look better and be healthier. If plants are leaning toward the light, rotate the pot partially. Continue to watch watering and don't begin to fertilize until active growth begins once again.

If mild days occur, check exterior plantings to see if moisture is needed and mulches are in place. Plants that have heaved up due to the action of freezing and thawing should be firmed back into place and mulch replaced.

The feeling of spring can be hastened by forcing branches of flowering trees and shrubs. Toward the end of the month cut branches, bring inside and place in warm water. Keep warm and when color begins to show arrange attractively. Forsythia and flowering crabs are particularly suited to forcing.

—Barbara B. Pesch

Bark, Twig and Fruit— Colors and Textures of Winter

Each month, the Gardening in St. Louis column will include a discussion of a specific subject submitted by a member of the horticultural staff. Mr. Godlewski's report is the first in this series.

With the advent of winter, one seems to be deprived of garden interest, but to the keen observer interest still exists in bark, twig and fruit characteristics. Many trees exhibit a marvelous architectural character which in itself lends a certain solidarity to the winter landscape.

A few highlights at the Garden include:

Acer griseum (paperbark maple). This Chinese maple has the outstanding feature of cinnamon brown-colored paperbark which peels off in thin translucent sheets in a fashion not dissimilar to the canoe birch *(Betula papyrifera).* The paperbark maple will ultimately attain a 25-foot height with a somewhat rounded head. The leaves are divided into three coarsely toothed leaflets, inconspicuous flowers in the spring develop into showy winged seeds. Fall foliage color is a marvelous crimson under the proper conditions.

Ulmus parvifolia (Chinese elm) is another Chinese native in the garden that has interesting bark characteristics. It is a tree which ultimately attains a 35- to 40-foot height in our Midwest climate with a spreading, arching habit almost to the point of weeping. Bark, with age, attains a lovely mottled effect in green, cream and brown. This elm fruits in the fall and holds its shiny green leaves, which turn yellow late in the fall. It has the added benefit of being resistant to the Dutch elm disease, although it will never attain the magnificent stature of the American elm.

A shrub exhibiting interesting twig characteristics during the winter is the *Cornus stolonifera* (redtwig dogwood). The twigs are a striking red color, creating an especially fine contrast against newly fallen snow. This dogwood is well adapted to our climate, being a native, and thrives in moist positions in the garden.

An interesting horticultural form exists called *Cornus stolonifera* 'Flaviramea', which has yellow twigs. This form requires the same cultural conditions as the redtwig dogwood. The flowers are small in clusters and are not of the showy bracted type commonly associated with dogwoods. The fall color is variable mostly in the red range. Periodic renewal may become necessary if the plant overgrows its position. This is accomplished by cutting the plant back to three to four buds above ground in the spring. This will cause a proliferation of new stems.

There are many plants exhibiting beautiful winter fruit display, but I will mention two. One is the *Crataegus viridis* (green hawthorne), another native of Missouri, with a strongly horizontal branching pattern and a great profusion of half-inch scarlet fruit which seem to hang on late into the season. A mature tree attains a 15- to 20-foot height with a rounded head of equivalent spread. Pruning is required to thin out excessive twiggy growth.

Last but not least is another native, the *Diospyros virginiana* (American persimmon), a tree growing to 30-40 feet with a broad oval crown. The bark is an attractive gray-brown fissured into a deeply checkered pattern. The fruits are 1½ to 2 inches wide, round, yellow to orange, very puckery until soft ripe, then very sweet. The leaves turn yellow, pink and red in the fall and are bronzy-red as they develop in the spring.

These examples prove the garden is for all seasons!

—Alan Godlewski
Chairman, Landscape Horticulture

Third Annual Phonathon

Once again the Garden will be participating in the Arts and Education Phonathon, which will be held during the last week of March. Fifty volunteers are needed to donate two hours of their time to help raise funds for this organization.

The Garden is one of 13 member organizations and depends on support from the Arts and Education Council as an important part of its operating budget. The Garden has called upon volunteers in the past to help with this project and it is hoped that this year the Garden can show support from its members. All that is involved is making phone calls from the Meeting Room at Plaza Frontenac or helping with related paper work. The persons who will be contacted are previous donors and will have received a letter in advance informing them of the solicitation.

If you are available to help, please fill out the information below or call 772-7600, extension 19. More information will then be sent to you.

Mail to: Mrs. Carol Taxman
Missouri Botanical Garden
2345 Tower Grove Ave.
St. Louis, MO 63110

Name_________________________ Phone_______

Address____________________________________

City_______________________________ Zip_______

Times available: *(Check one)*

☐ Wednesday, March 27, 9-11 a.m.
☐ Thursday, March 28, 9-11 a.m.

Mrs. Martin Lammert III

Mrs. Martin Lammert III, wife of the chairman of the board of Lammert Furniture Company, died November 16, 1978, following a lengthy illness.

Mrs. Lammert was active as a volunteer at the Garden for many years. Under her guidance, the Women's Committee was formed and she served as the first president of that organization from 1955 to 1957. Upon her retirement, a white iris was named in her honor, Bartow Lammert.

Another award was given to Mrs. Lammert in 1962 by the Board of Trustees. The Golden Climatron award, given only three times, was awarded on the basis of Mrs. Lammert's outstanding contributions to the Garden.

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Mrs. Ernest A. Eddy, Jr.

In Honor of Mr. Ernest A. Eddy, Jr's. Birthday
Mrs. Ernest A. Eddy, Jr.

In Honor of Mrs. Samuel Edison's Birthday
Louis and Bert Melchior

In Honor of Jason's auspicious arrival
Margie and Jules Berg

In Honor of Dr. and Mrs. Charles Sherwin's Special Anniversary
Gerry Barnholtz

In Honor of Mr. and Mrs. Ralph Smith's Golden Anniversary
Marian Barnholtz

In Honor of Mrs. Casper S. Yost's Birthday
Mary Proffitt

In Memory of Peggy Bearman's Father
Mr./Mrs. H. M. Talcoff

In Memory of Mr. Lewis Bsharah
Drs. Kenneth and Ellen Lissant

In Memory of Mrs. Blanche Burnett
Mr./Mrs. Paul B. Wright

In Memory of Mrs. Anna Carr
Gerry and Marian Barnholtz

In Memory of Mrs. Charles E. Claggett
Mary E. Bascom

In Memory of Mrs. Marie W. Dwyer
Mr./Mrs. Wallace Tuttle

In Memory of Dale G. Farmer
Eunice F. Fritsche

In Memory of Mrs. Martin Lammert, III
Lammert Employees Assn.

In Memory of Mrs. Harold P. McAllister
The Robert Dennis Family

In Memory of John B. McKee
Mrs. Roger C. Shirtum

In Memory of Mrs. Thomas S. McPheeters
Mrs. Joseph H. Bascom
Mary Elizabeth Bascom
Mr./Mrs. Sam'l C. Davis
Mr./Mrs. John H. Hayward

In Memory of Mrs. Gladys S. McRee
Mrs. Wilbur B. Jones
Mr./Mrs. Daniel L. Schlafly

In Memory of Mrs. Henry McRee
Mr./Mrs. John H. Hayward

In Memory of Marion Riechart, R. N.
Fern Kloepper

In Memory of Nina B. Snyder
Mr./Mrs. William A. Frank

In Memory of Fan Spenser
Ruth and August Homeyer

In Memory of Mr. J. G. Taylor Spink
C. C. Johnson Spink

In Memory of Helen Strubinger
Ralph and Jane Edwards

In Memory of George Taaffe
Peg and Joe Tucker, Jr.

In Memory of Joe Williamson, Jr.
Pitzman's Co. of Surveyors & Engineers

In Memory of Mr. and Mrs. Yukinobu Yamamoto
Mrs. Ritsuko Shoji

In Memory of Harry Zucker
Mr./Mrs. Tobias Lewin

MISSOURI BOTANICAL GARDEN BULLETIN
2345 Tower Grove Avenue
Saint Louis, Missouri 63110

SECOND CLASS
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AT ST. LOUIS, MO.

Missouri
Botanical
Garden
Bulletin

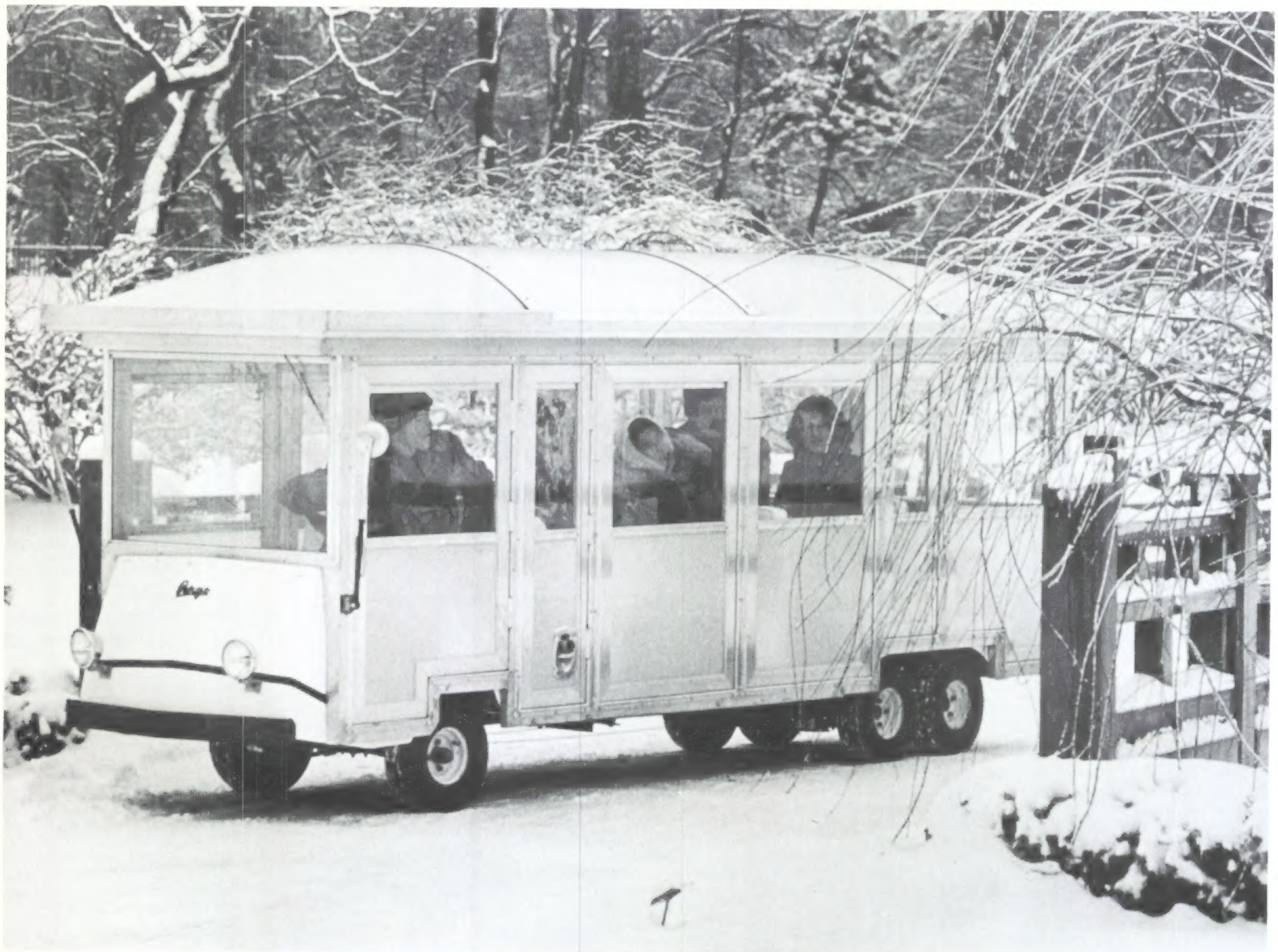
Moth orchid, one of hundreds of orchid varieties on display during the Orchid Show, February 3-March 11 in the Climatron.

The Garden: A Public Service Resource

During the process of setting priorities and goals, the Public Services Division of the Garden, headed by David Goudy, prepared a presentation for the Board of Trustees in December. Because so much of this information is relevant to Garden members, excerpts from the presentation will be printed in this and future issues of the Bulletin.

Henry Shaw, in establishing the Garden, spoke specifically to the issue of the Garden's public nature: "Whereas I have for many years been engaged in laying out and establishing a botanical garden . . . which is now known as The Missouri Botanical Garden . . . for the object and with the view of having for the use of the public a botanical garden easily accessible, which should be forever kept up and maintained for the cultivation and propagation of plants, flowers, fruit and forest trees, and other productions of the vegetable kingdom; and devoted to the same and to the science of botany, horticulture, and allied objects . . . and to preserve the same to the use and enjoyment of the public for all time."

(Continued on Page 2)



The Garden's new electric trams, enclosed and heated for winter use, are representative of the Garden's ongoing public service activities. The trams operate from 10 a.m. to 3 p.m. weekends, weather permitting, and are available at other times by reservation, by contacting the education department.

Volume LXVII Number 2
February 1979

Public Service . . . *(Continued from Page 1)*

Shaw's intention is clear. The purpose of this presentation is to discuss how we are organizing our resources to insure this "use and enjoyment" by the public.

A key department concerned with our image and visibility is the Public Relations Department. It has rapidly expanded in recent years to assume a much broader and active mode more directly involved in articulating our public-related goals and influencing the operational policy-making to realize these goals.

(Editor's note: Susan Flowers' discussion of the Garden's public relations department will appear in a subsequent issue.)

One of our major means of transmitting Garden information, whether helping a Garden visitor appreciate the subtleties of the Japanese Garden, or helping St. Louisans grow a better tomato, is through the print medium. This activity is housed in our Publications Office under the management of Barbara Pesch, and in this capacity she is charged with producing and editing our wide range of written materials on horticultural topics, scientific reports, and various items of general information about our own Botanical Garden.

(Editor's note: Barbara Pesch's discussion of the Garden's publication's office will appear in a subsequent issue.)

You are well aware of the outstanding growth rate of our membership program, and the wide variety of creative activities and programs, developed and implemented by the Membership Committee, which provide a major and important part of our public visibility.

(Editor's note: Nancy Lammers' discussion of the Garden's membership activities will appear in a subsequent issue.)

In closing, I would like to review briefly some additional activities and elements of the Garden's operation which are somewhat interdepartmental in nature. You are all well aware, of course, of the large number of popular programs offered for adults and school children through our Education Department. You may not, however, be as aware of many other community functions provided through this department. For example, as a result of one community need clearly identified in the membership survey, we have recently developed a completely volunteer corps of instructors within the Education Department to export horticultural workshop activities to special senior citizen centers. Our efforts in recent years with the St. Louis Public Schools have resulted in what we believe to be the only example nationally of a cultural institution becoming involved in a substantial and significant way in the desegregation efforts of a major urban school district. We are currently involved in meetings with local neighborhood groups exploring mechanisms to bring the Garden's horticultural talents into the neighborhoods to assist in their beautification and development of neighborhood pride. These are but a few examples of the Garden's efforts to pay attention to our community and develop specific programs responding to local needs.

But we must also view education in the broader context, going beyond specific courses, workshops and programs, and looking at the more fundamental questions of how the Garden itself is designed and arranged to provide meaningful and educational experiences about the plant world for the many hundreds of thousands of people who visit. In this respect we're really only beginning to scratch the surface, but the interpretive efforts being incorporated into the floral displays as well as the various special displays using our permanent collections, such as the recent Desert House program, "The Ubiquitous Euphorbias", are major beginnings in this direction.

The visitors' survey is of course a very valuable tool in our overall efforts to understand just who our audience is, why they are using the Garden, and how we might better structure our facilities and programs to more closely serve their interests. This information also serves as a basis for extrapolation to determine who our potential audience might be — that is, those people who may not presently be visiting but conceivably would be interested. Only with this kind of feedback information can we truly monitor our development, organizing our efforts to make this Garden an experience which will both entertain and educate, enticing our guests to come back again and again and, of course, ultimately as members and supporters of the institution.

In industry this is, of course, the major role of the marketing people. And the visitor survey here is the first element in our movement toward a more clearly defined marketing capability at the Garden. We have been working recently with a group of marketing specialists, volunteers from local industries, to evaluate and expand these efforts.

The basic message, however, is this: implementation of the very creative Master Plan developed in 1972 by EPD has given a great deal of attention to making the Garden what can be truly described as a people place. Attention to a wide range of details to accomplish this, ranging from the major and spectacular, such as the Japanese Garden, down to the smaller but in terms of visitor enjoyment and comfort, equally important elements such as our entrance facilities, benches, drinking fountains, signage, and so forth, has created a very special and unique ex-

(Continued on Page 11)

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Solar Greenhousing: 'The Sun Is For Everyone'

When Ken Peck of the education department returned tan and excited from a whirlwind trip to New Mexico (something about solar greenhouses), he asked in his casual way if I wanted to hear about the conference. A horticulturist myself, I knew I should be interested; but feeling swamped with other duties I responded with "Thanks, but no-thanks." A few days later I found a flyer, announcing a Solar Greenhouse Workshop, placed conspicuously atop my desk. Bold lettering across the bottom broadcast an appropriate motto, "The Sun is for Everyone". My interest was sparked once again. A lazy Sunday afternoon and my own curiosity prompted a visit to the construction site of one of the first attached solar greenhouses to be built in the St. Louis area as a part of this workshop.

That's when I understood Ken's enthusiasm.

At 562 Garden Street, Webster Groves, the sun's angles had been determined. A southern exposure chosen and excavated. The foundation laid and insulated. A team of interested individuals were learning by doing: hammering studs, cutting insulation, measuring the glazing (the clear 3M flexigard covering that's used instead of glass). Several 50-gallon barrels, painted flat black, were grouped at one side of the site, awaiting their tasks as heat storage units. As I talked with Susan Yanda, one of the originators of the solar greenhouse project, I could visualize an April harvest of sugar peas, lettuce, and radishes, home-grown flowers for gift giving at Christmas and a lower heating bill, accomplished by venting excess heated air from the greenhouse into the home. Then a question popped into my mind, "How did a botanist/educator from the Missouri Botanical Garden get involved in building solar greenhouses?"

On questioning Ken, I was referred to Arthur Pederson, a solar design engineer. Mr. Pederson had been asked by Bill Yanda of the Solar Sustenance Team under contract to the U. S. Department of Energy, to organize a Missouri delegation which would attend a solar greenhouse training session scheduled for October in north central New Mexico. The delegation of three was to include an engineer, a horticulturist and a community coordinator. Having been a Garden member for several years, it was natural for Mr. Pederson to contact the Missouri Botanical Garden for a horticulturist. Ken accepted the offer as an opportunity to explore the potential of the project and bring something new to the homeowners of St. Louis.

Art Pederson, Ken Peck and Lois Pierson, the third member of the team, arrived at Ghost Ranch, New Mexico, along with 40 other individuals from across the country (all climatic regions were represented, except the northwest coast). The next four days were spent in training sessions and discussions, with the major objective of preparing each delegation to conduct solar greenhouse workshops in its communities. The Missouri delegation was impressed with the thoroughness of the program and the integrity of the session directors.

Southern exposure and solar energy at 562 Garden St.

Bill Yanda, Susan Yanda and several others make up the Solar Sustenance Team, which has been conducting workshops and building solar greenhouses, which serve as solar collectors when attached to a home, for the past four and one-half years. Their work in 30 states has been sponsored by grants from the Departments of the Interior and Agriculture, and presently a seven-month contract with the Department of Energy. Originally directing their efforts to low-income groups and rural families with the immediate need for a food and heat producing unit, the team is now widening its focus. Everyone can take advantage of the sun — it's clean, cheap and available. A solar greenhouse functions *without*

(Continued on Page 11)

Deborah Colombo Named Plant Shop Manager

Deborah Colombo has been named the new manager of the Garden's Plant Shop, it was announced by Charles Orner, Garden assistant director. Mrs. Colombo, a St. Louis native, received a Federated Garden Club of Missouri scholarship while attending the University of Missouri-Columbia, where she earned a degree in horticulture. Mrs. Colombo has been the recipient of several horticultural awards and is a member of a number of honorary fraternities.

Deborah Colombo

Tour Reminders

As a reminder to our Members, the following exciting tours are included in the travel schedule for 1979:

- Desert Field Study Tour of Arizona and New Mexico, escorted by Kenneth Peck, manager of Instructional Services; March 24 through April 1.
- Scandinavia; tour to Norway, Sweden, Denmark, Finland including a Russian cruise; June 12 through June 26.
- Canadian Cariboos by helicopter includes Banff, Lake Louise, and Jasper; August 23 through August 31.
- Ireland Castle and Garden Tour; September 20 through September 28.

For further information, please call the Members' office, 772-7600, extension 25.

Letter To Members

The following "membership" letter is published at the request of the author, Mrs. Nora Stern.

Mrs. Walter G. Stern

Dear Member:

I want to thank all of you individually for your generous donations toward the Members' project. We are well on our way toward the $135,000 goal because of your strong support. The Education Laboratory Workroom in the new Education/Visitor Orientation Center will become a reality because of your donations.

The graphic incorporating the signatures of those of you who have contributed $25 or more is now in the design phase. I am pleased to announce that there will be a reception in October or November at which the designs and plans for the new building will be previewed. At that time the limited edition posters for those Members who have contributed $250 or more will be available. We look forward to this occasion with anticipation and excitement.

Again, my thanks for your support for this significant project. I'll look forward to thanking you in person.

Sincerely,

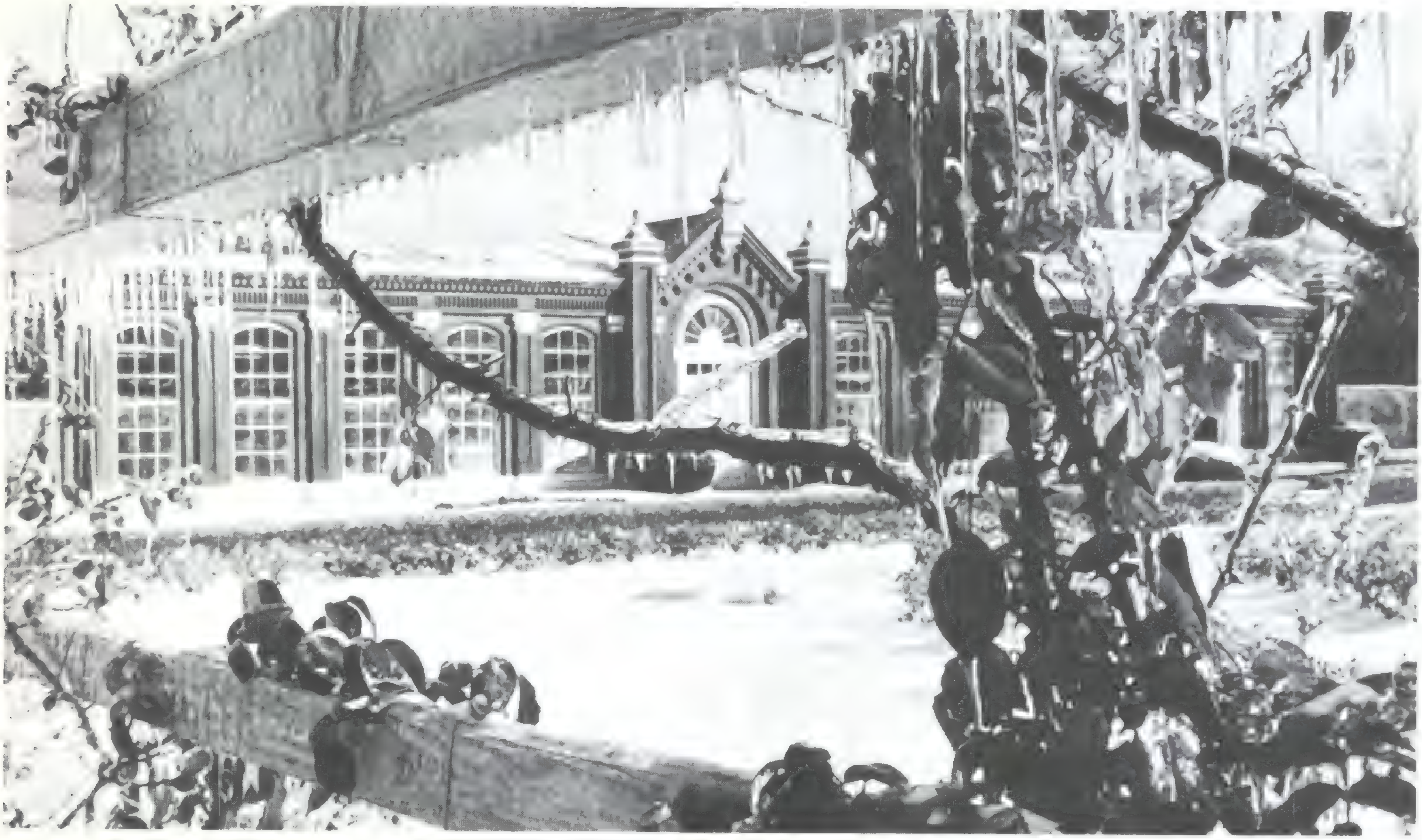
Mrs. Walter G. Stern
President, Executive Board of Members

Henry Shaw Cactus Society Gift

The Henry Shaw Cactus Society, represented by Betty Demzik and Pat Thoman, has presented the Garden with a significant contribution for the horticulture department.

Dr. Peter H. Raven, Garden director, expressed great appreciation to the Society in accepting the gift. The Society has 275 members and presents its show annually at the Garden, in late August.

The Garden In Winter, A St. Louis Ice Palace



Gesneriads, A Royal Family Of Plants Fo

Surely the queen of flowering plant families in American homes today is the gesneriad family. To this family belong the ever-popular African violets *(Saintpaulia),* the showy florist gloxinias and their exquisite next of kin, the slipper gloxinias (all members of the genus *Sinningia),* the remarkable Cape primroses *(Streptocarpus),* and the gracefully trailing goldfish plants *(Columnea).* Perhaps less well-known, but becoming increasingly popular, are the genera *Aeschynanthus, Achimenes, Episcia,* and *Nematanthus.*

Gesneriads are dazzlingly varied in size, form and color. They range in size from the diminutive and everblooming *Sinningia pusilla* from Brazil, scarcely two inches tall, to the giant cyrtandras of the Pacific Islands, small trees in their own right. They may be terrestrial (grow on the ground) or epiphytic (grow on other plants); evergreen or deciduous; annuals or perennials; stoloniferous, fibrous-, rhizomatous-, or tuberous-rooted; herbaceous or woody; vines, shrubs or trees! The colors of their flowers range the rainbow. Some gesneriads flower almost continuosly: many of the African violets, some episcias and kohlerias, and, in particular, two small plants with big futures in the home — *Streptocarpus saxorum* (recently touted in the trade as the dauphin violet), and *Sinningia pusilla* (unusual in this respect because of its tuberous-root system which ordinarily implies a dormancy requirement). With careful selection, a year-round display of gesneriads in flower is an attainable goal.

As with so many other cultivated groups of plants, a knowledge of the natural setting of gesneriads is the key to understanding their cultural requirements and growing them successfully in the home. Most gesneriads are from the tropics and generally grow as epiphytes or in rocky, mountainous regions. Consequently, moderate temperatures (60°-80°F), good light (12 hours or more a day under fluorescent lights), ample water, and a well-drained soil (one-third to one-half of which consists of good drainage material like sand, osmunda, perlite, or vermiculite) are all important prerequisites to successful culture. A more precise knowledge of a particular plant's background will improve chances of success, especially with the more challenging species.

The tremendous success of gesneriads in recent years has been practically predetermined by a fortuitous combination of characteristics: a frequently everblooming nature, an extraordinary adaptability to home climates, and an engaging ability to be readily propagated. Because of the myriad species, cultivars, and unnamed variants of gesneriads which are readily available from friends, relatives, local commercial growers, and nationally famous firms, it is almost impossible for a discriminating beginner to begin always at the beginning: with a careful selection of attractive, interesting, and reliable sorts. The following suggestions are presented therefore as a help toward cutting through the confusion of innumerable choices and providing some diversity to a collection of this beautiful and fascinating family of flowering plants.

African violets *(Saintpaulia)* come in three basic types: miniatures, rosettes, and trailers, with some barely perceptible gradations between them. Rosettes continue to be the most widely grown although miniatures are becoming more popular each year. One can hardly go wrong by choosing among the Ballet or Rhapsodie hybrids which have been bred for durability, greater tolerance of neglect, floriferousness, and long-lasting flowers. Many of these and other good hybrids are listed on the Honor Roll of African Violets, published regularly in the *African Violet Magazine.* To be included on this prestigious list, a cultivar has to have been a favorite in African violet circles for at least five years, so one can depend on it to be great! Another group of hybrids which appears promising for home culture is the Optimara series, each member of which will be named after one of the United States. Thus far, Missouri and Illinois have not been so honored. Most hybrids today are the result of crossing two, three, or four of some two dozen natural species which grow wild in the mountainous regions of eastern Africa. The more dedicated devotees of this genus will delight in growing some of the true species. Among those with considerable natural charm and relatively easy growing requirements are *Saintpaulia intermedia,* a blue-flowered, prostrate grower, *S. ionantha,* one of the principal sires of many African violet hybrids, *S. magungensis,* a purple-flowered trailer, and *S. orbicularis,* a lilac-flowered, multi-crowned plant.

Second only to African violets in popularity

African violets (Saintpaulia).

he American Home

among the gesneriads are the sinningias. Interestingly, it is not the large and showy members of this group (the florist gloxinias, the slipper gloxinias, and their variants), known for more than a century, but some of the miniature species and their hybrids, developed within the last two decades, which are catching on as successful house plants.

Most of the success of the miniature sinningias centers around the everblooming quality and ease of culture of *Sinningia pusilla,* a little native of a big country—Brazil. Crosses involving this little lilac-flowered species and three other Brazilian sinningias have produced a number of miniature, everblooming, and self-sowing plants ideally suited for the terrarium. Among the best are the species, *Sinningia pusilla,* and the following hybrids: 'Bright Eyes', 'Cindy-ella', 'Dollbaby', 'Hircon', 'White Sprite', and 'Wood Nymph'. A number of these and other miniature gesneriads may be regularly seen on display in the small terrarium near the eastern entrance of the aquatunnel on the Climatron's lower level.

The Cape primrose *(Streptocarpus),* a more robust relative of the African violet, is botanically divided into two groups, one of which is composed primarily of unusual, one-leaved plants, many of which, like century plants, die after flowering and fruiting once. From this group, the large and colorful Wiesmoor hybrids have been developed. The other major group of Cape primroses consists of plants with more normal growth habits, including one of the most versatile of all gesneriads, *Streptocarpus saxorum.* With a fine growth habit, pleasing velvety texture, delicately formed flowers, and a tolerant nature, this plant should be in any beginner's collection of gesneriads. Because of its increasing popularity, this plant has picked up the fanciful, if unfortunate, common name of dauphin violet (African violets, Cape primroses, and all of their gesneriad relatives are not at all related to the violet or primrose families, their nearest relatives being the figwort family, including such favorites as the beard-tongues, foxgloves, and snapdragons). As ways are found to breed more heat tolerance into the Cape primroses, we will surely be hearing more about more of them in the future. The newer 'Nymph' and 'Cape Primrose' hybrid series are a big step in this direction.

After African violets, perhaps the most rewarding gesneriads for beginners to grow without the benefit of fluorescent light are those epiphytic sorts which make spectacular pot or hanging basket plants — the columneas *(Columnea).* Many of the newer hybrids are everblooming, and among the best for indoor culture are: 'Bonfire', a vigorous, semi-trailing plant with yellow and crimson flowers; 'Chanticleer', a compact, shrubby sort with light orange flowers and a lot of tolerance as a house plant; 'Early Bird', another compact grower with small leaves and large, upright, orange flowers; 'Gold Finch', a trailer with small leaves and large yellow flowers; and 'Mary Ann', a compact trailer with deep pink flowers. For the more adventurous, two Cornell hybrids which make fine hanging basket plants are *Columnea* 'Cayugan', with large red flowers, and *C.* 'Ithacan', with orange-red flowers. Other epiphytic gesneriads which hold great promise for the future as house plants belong to the genera *Aeschynanthus* and *Nematanthus.*

Sinningia pusilla *from Brazil, diminutive and everblooming.*

Many of these gesneriad gems should be available in local garden centers or can be ordered through specialty firms advertising in plant magazines, particularly the *African Violet Magazine* or *The Gloxinian.* A comprehensive list of commercial firms interested in gesneriads may be found in the November, 1977 issue of *African Violet Magazine.*

For those interested in learning more about this fascinating family of plants, there are a number of good references readily available in most book stores. Among the best are: Virginie and George Elbert's *The Miracle Houseplants—the Gesneriad Family,* published by Crown in 1976 and Helen Van Pelt Wilson's *African-Violet Book,* published by Hawthorn in 1970. Excellent booklets on the subject are also published by the American Gloxinia and Gesneriad Society *(How to Know and Grow Gesneriads)* and the Brooklyn Botanical Garden *(African Violets and Their Relatives).*

The most pleasurable way to become acquainted with gesneriads is to visit a flower show featuring them. Such an opportunity will be at hand later this month when the Metropolitan St. Louis African Violet Society stages its Silver Jubilee Show in the Garden's John S. Lehmann Building on February 24 and 25. Come and get hooked on gesneriads!

–Charles A. Huckins
Chairman, Indoor Horticulture

T. B. Croat Authors *Flora Of Barro Colorado Island*

Thomas B. Croat

Thomas B. Croat, the Garden's Paul A. Schulze Curator of Botany, is the author of a book, *Flora of Barro Colorado Island*, soon to be published by Stanford University Press. The book draws on 10 years of fieldwork and research and is perhaps the most comprehensive taxonomic treatment of tropical flora ever published.

Barro Colorado lies in the Panama Canal Zone and is only six square miles in size. Its importance lies in the fact that it supports more than 1,350 species of higher plants, a total which approaches that of the British Isles. The island was set aside as a preserve in 1923 and is currently supervised by the Smithsonian Tropical Research Institute. The area will continue to be important to biologists and ecologists since it is one of the few remaining tropical areas with relatively undisturbed natural populations.

The book is illustrated with nearly 600 halftone photographs taken by the author in the field. A unique feature is a key to sterile woody plants which will enable scientists to make surveys of the forest at any time of the year. The introduction includes a history of the Canal Zone, the island and botanical collection, maps and an analysis of the island's climate, geology, soils, vegetation types and habitats.

This project has been a collaborative effort in conjunction with the Smithsonian Tropical Research Institute and the Garden.

Tower Grove House Reopens

Sparkling with new paint and wallpaper, Tower Grove House is open again for public visitation. During the winter months, a new menu is being offered in the tearoom. Choose from spinach quiche, chicken divan or lasagna served with a tossed salad, hot roll, pastries and beverage for $4.50. Call for reservations in advance, 773-9000.

Tower Grove House winter hours are 10 a.m. until 4 p.m. daily.

Things For Spring

Spring Garden Workshop

The Spring Garden Workshop, March 3-4, will have more features than ever before. Whether your interest is plant propagation, soil testing, fruits and vegetables, pruning roses, container gardening or solar greenhouses, the latest information will be available. In addition, the Answermen will answer your special questions. Tours of the research segment of the John S. Lehmann Building and Japanese Garden will be offered both days. Don't miss it!

Spring Show

Exciting details for the annual Spring Show will be announced in the March *Bulletin*. Circle the dates on your calendar: March 17-April 15. The theme of this year's show will be Victorian and will focus on the 75th anniversary of the 1904 World's Fair.

Spring Lecture Series

The Members' Spring Lecture Series will begin February 28 with a demonstration of Ikebana, the art of Japanese flower arranging. Florence Morris of the Ikebana Society will be the speaker. This series will provide an opportunity to learn from local amateur horticultural experts in areas of specific interest. Representatives from the St. Louis Herb Society, Rose Society, Orchid Society of Greater St. Louis, Saintpaulia Society, Henry Shaw Cactus Society, Greater St. Louis Dahlia Society and Men's Garden Clubs of America are scheduled to speak.

The lectures will be presented on Wednesday, February 28 through April 18, at 10:30 a.m. and 8 p.m., in the John S. Lehmann Building auditorium.

New Year Of Trees Exhibit

A new exhibit and self-guiding tour of plants will be featured in the Mediterranean House from January 27 to February 18. Plants on display are native to the Holy Land and have particular significance to the Jewish holiday, New Year of Trees.

The holiday, Tu Bi-Shevat, will be honored by the exhibit of those plants cited in the Psalms, which have special meaning for this occasion. Included in the three-week exhibit are carob, cypress, date palm, fig, grape, olive and pomegranate. These and other Biblical plants will be identified and accompanied by scriptures and other pertinent information. Other Biblical references and a map depicting the Holy Land in Biblical times will be on display.

The exhibit will be open daily from 9 a.m. until 4:30 p.m.

Camellia Season In Linnaean House

Camellias in bloom, a February feature in the Linnaean House, open to the public from 9 a.m. to 5 p.m. daily.

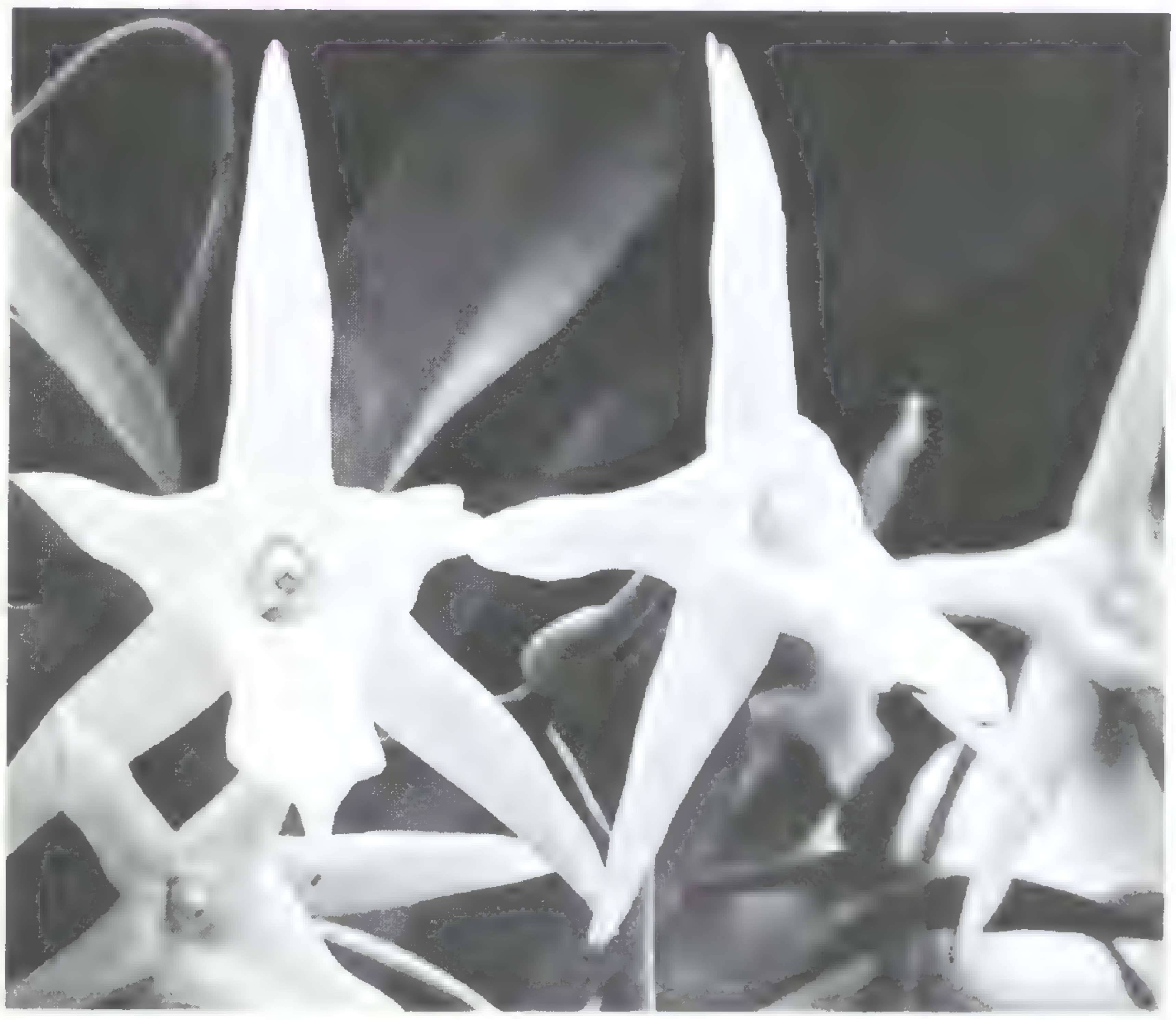
Plant Shop Specials Featured In February

February will be highlighted by special offerings from the Plant Shop. *Anthurium scherzerianum,* commonly called flamingo flower, will be the "special" for Valentine's Day. Especially appropriate for the occasion, the plant has red heart-shaped flower bracts which endure for as long as a month. The plant adapts well to home conditions and rarely reaches a height of more than 12 inches.

Camellias in flower in the Linnaean House chase away the winter blues. Plants in bud and bloom may also be purchased in the Plant Shop all month.

Many orchids will be available for sale in conjunction with the orchid show in the Climatron. An array of flower types and colors will be offered—all plants in bud or bloom.

Come to the Plant Shop to see the spectacle of blooms. The Shop is open daily from 10 a.m. to 4:30 p.m.



Angraecum sesquipedale, *an orchid variety. Featured among February specials in the Plant Shop will be orchids, flamingo flowers and camellias.*

Gardening in St. Louis

Seed catalogs may be dog-eared by now, but will have provided some pleasurable hours of garden planning. If seeds haven't been ordered, complete selections and send in your order. Cool weather crops, depending upon the weather, should go in soon, so it is best to have the seeds on hand.

While making your seed selections, don't miss the new award-winning vegetables and flowers for 1979. Many new disease-resistant varieties are being offered as well. Just to mention a few: 'Sugar Snap', a new snap pea which has large peas and edible pods; 'Apple Squash', a round, green squash to be eaten raw or cooked; 'Quicksilver', a white sweet corn much like 'Silver Queen' but maturing 10 days earlier; 'Dutch Treat', a new pepper which develops fruits in clusters on top of the compact plant with pointed ends sticking up — red at maturity. There are many new flower winners. Several marigolds — one is 'Queen Sophia', a dwarf variety in orange suffused with bronze. There is a new class of coleus called Wizard — multi-branching habit which doesn't require pinching. Zinnias have several new additions. These are just a few of the many '79 winners. Check them out in your seed catalogs.

Forcing Branches

If branches weren't forced last month, this is a good time to try. Pick apples, flowering quince, pussy willows and forsythia. All force well. Select specimens that need some pruning or shaping. Pick several branches, bring in the house and immerse in warm water for half an hour. Remove from the water and make a two- to three-inch slit at the base of the stem. Place in a container in an area where the temperature is around 65°. When color begins to show, arrange attractively and place in good light.

Some of these branches will root and can be potted. Keep inside in a cool place until cuttings can be planted outside. You can also make cuttings of other trees and shrubs at this time. Bottom heat will aid rooting. After four to six weeks, rooted cuttings can be placed outside in a hotbed or cold frame until planting time.

Seed Geraniums

If geranium seeds are planted now, flowering plants will be produced by the end of May. Plant seeds and keep moist in an area where the temperature is about 70°. Germination will take place in 10 days to two weeks. The seedlings should be given good light. Seed geraniums now come in a wide range of colors, bloom freely all summer and are often superior to the older varieties grown from cuttings. If you haven't tried them, do so.

Greenhouse Care

Watch daytime temperature as it can soar even on the coldest days when the sun shines. Keep checking for pests and diseases and treat as required. Potbound plants should be repotted, selecting a container at least two sizes larger. Seeds can be started in the greenhouse as well. Use sterile medium for seeds and seedlings. Watch for damping off, a fungus disease. Apply a fungicide and remove infected seedlings. This disease can be quite detrimental. Seedlings should be transplanted as soon as the second or third pair of leaves appear.

House Plants

Watch watering on house plants and increase as days grow longer. Feed flowering plants and foliage plants as new growth begins to appear. Bulbs should now be ready for forcing if that hasn't been accomplished earlier. Daffodils and tulips will provide bright spots of color and serve as a pleasant reminder that spring isn't too far away.

Outside

It is too early to remove mulches even though mild days may appear. Check plants for heaving due to frost and firm back into the soil if this occurs. Some early cool vegetable crops can go in if weather permits — peas, cabbage, cauliflower, Brussels sprouts and spinach.

Areas by streets and sidewalks where salt has been used should be heavily watered during mild days to carry away excess salt to prevent burning.

Be certain to plan to attend the Spring Garden Workshop March 3-4 for all the latest gardening information.

–Barbara B. Pesch

Calendar Of Events

Continuing through Feb. 18	New Year of Trees Self-guiding tour Mediterranean House 9 a.m.-4:30 p.m., daily
Feb. 3-Mar. 11	Orchid Show Climatron 10a.m.-4:30 p.m., daily
Feb.	Camellias blooming in the Linnaean House 9 a.m.-5 p.m., daily
Feb. 24, 25	African Violet Show, "Silver Jubilee" 25th Annual Show presented by Metropolitan St. Louis African Violet Society John S. Lehmann Building Feb. 24 2-5 p.m. 25 9 a.m.-5 p.m.
Mar. 3-4	Spring Garden Workshop John S. Lehmann Building Education wing

Solar Greenhousing . . . *(Continued from Page 3)*

supplemental heating and cooling units, *without* the high cost of fossil fuel. But for these same reasons it demands more thought, design work, labor and care.

Ken returned from New Mexico with a 50-page participant's packet, a copy of *The Food and Heat Producing Solar Greenhouse,* by Rick Fisher and Bill Yanda (1976), several rolls of film and plenty of ideas for the first Solar Greenhouse Workshop, which materialized on December 9, with a well-attended public meeting. The following weekend a solar unit was attached to the house on Garden Street, much the same way as barns used to be raised, with everyone pitching in. The total cost was less than $5/sq. foot. Although the structure isn't operating as yet, it can be inspected throughout the first year of use, by prior arrangement with the owners, Lois and Doug Pierson (968-4562). Future workshops are planned.

–Karla Patterson
Education Department

New Solar Energy Workshop

Do you like fresh vegetables? Are you interested in utilizing the sun's energy more efficiently to lower your heating costs? Would you like to know exactly what's involved in building and maintaining your own solar unit? Then you might like to enroll in the "Solar Greenhouses" course at the Garden this spring. Ken Peck and Art Pederson will be teaching two evening workshops on February 27 and March 6, covering concepts, design, construction and use of solar greenhouses. On Saturday, March 10, the class will construct a solar unit. Look for the announcement of this course in the spring brochure, and make the sun a practical part of your life today.

Public Service . . . *(Continued from Page 2)*

perience which is enjoyed and appreciated by an ever increasing and wide ranging audience. The addition of our electric trams, of many new water features, including waterfalls and exciting fountains, great improvements in the quality of design and maintenance in our expanded horticultural features have all combined to make the Garden more than ever before an enjoyable, comfortable, rewarding and fun place to visit.

In short, I think all of the elements and dimensions of the institutional programs which we have discussed today have developed and are continuing to evolve out of a very keen desire that the fundamental business of this institution be service to the public.

–David Goudy
Director of Public Services

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MISSOURI BOTANICAL GARDEN BULLETIN
2345 Tower Grove Avenue
Saint Louis, Missouri 63110

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Missouri
Botanical
Garden
Bulletin

Sure 'n begorrah, there's wee folk about! See Page 6.

Spring Show To Bloom Under Canvas

The Garden's annual Spring Flower Show, a month-long extravaganza of color and floral display, will be held under canvas this year, inside a large tent erected on the Garden grounds near the Climatron. The show will take its theme from the Garden's Victorian, turn-of-the-century heritage.

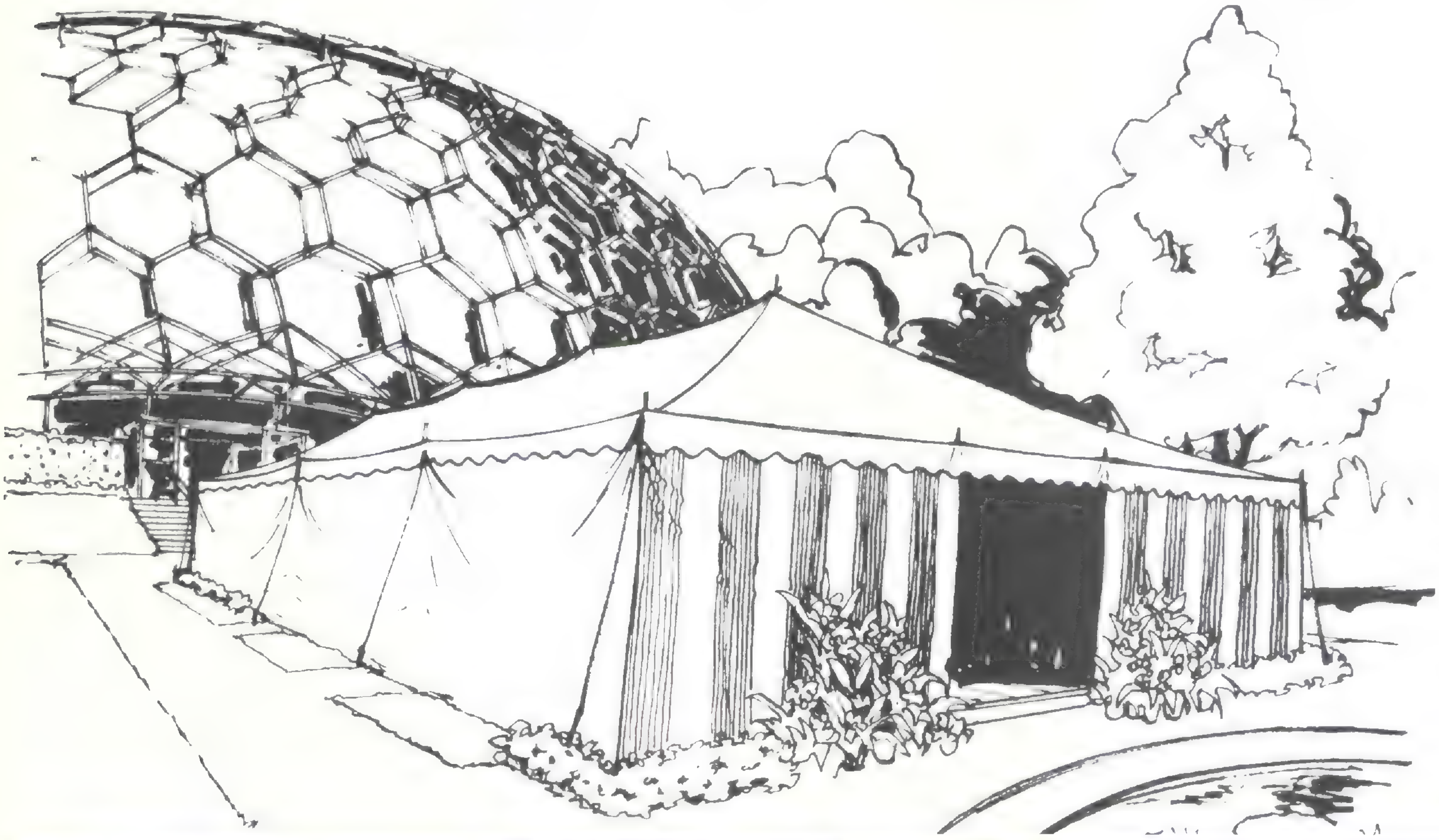
The show's display elements will feature an endless variety of colors, flower types and fragrances — in essence, the nature of spring at its best. On display will be flowering shrubs, azaleas, lilies, bulbs galore, stock to scent the air, annuals for color, daisies, hydrangeas.

The show will open for members with the Spring Flower Show Preview, to be held from 5 to 7:30 p.m. Friday, March 16. It will open to the public on Saturday, March 17, and will continue through Sunday, April 15.

Several "special" events, planned to reflect the theme of nostalgia, have been scheduled during the period of the Spring Flower Show, including a Wine & Cheese Party on Saturday, March 24; a Family Picnic Day on Sunday, April 1; and an outdoor Jazz Concert on Sunday, April 8.

Highlights of these "special" days will include candlelight tours of Tower Grove House, carriage rides, hostesses in Victorian costume, refreshments and a variety of live music programs.

The Spring Flower Show will be open to the public from 9 a.m. to 4:30 p.m. during March, and from 9 a.m. to 5 p.m. during April.



The Spring Flower Show, themed to the turn-of-the-century, will open March 17 under canvas – a massive tent erected on the Garden grounds near the Climatron. The Show continues through April 15.

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March 1979

The Garden: A Public Service Resource

During the process of setting priorities and goals, the Public Services Division of the Garden, headed by David Goudy, prepared a presentation for the Board of Trustees. Because so much of this information is relevant to Garden members, excerpts from the presentation will be printed in this and future issues of the Bulletin.

Public Relations Department

Public Relations at the Garden focuses on the people who visit the Garden. It is our function to find out who it is that patronizes the Garden, what they think the Garden is, and what they expect from it. Then, we must assist internally and externally to shape the Garden to meet those needs. We want our visitors to know we care about them.

Since late last summer, we have been surveying our Garden guests to shape a profile of our present audience. We need to know more about them. It is through them that the Garden is supported; as a result of their support the Garden will continue to grow.

We discovered during August, 1978, that 80% of our visitors are coming to the Garden for the first time; that 57% of our visitors were from out of state; that 91% were not members and that the majority (54%) were 25-40 years old.

Public Relations recognizes, however, yet a larger potential audience of people who are not aware of the Garden. We believe that this greater audience should benefit from our resources as well. We are responding in many ways to this broader need.

Our intention is to listen to and serve both these publics — the community at large as well as our visitors.

With the desire to better serve, we recognize the need internally to translate or interpret our visitors' desires. We work directly with other departments in program development to better address visitor needs. For example, we are currently monitoring people who are taking courses in our education department to assist that department in planning programs in which the public is interested. As a second example, we have been bringing local representatives of handicapped organizations to evaluate the Garden's accessibility to the handicapped and to consult with them on plans for our new building. We realize we must be prepared to offer hospitality to all people.

Our audiences *are* responding. Gate attendance generated $500,000 this past year. Membership has tripled in the last seven years. The Garden is continuing to grow and develop even though inflation continues to squeeze recreational dollars and competition for those dollars is on the sharp increase. We are convinced that as we reach out to our audience, the Garden has an experience to offer which will be meaningful for them.

–Susan Flowers
Manager of Public Relations

A&E Fund Drive Launched Toward $1.9 Million Goal

The Annual St. Louis Arts and Education Fund Drive was launched on February 20 with an ambitious goal — $1,900,000. The Garden is one of 12 fund members who derive direct financial support from the fund.

Richard J. Mahoney, Jr., executive vice president, Monsanto Company, is this year's campaign chairman. This is the third and last year of the National Endowment for the Arts Challenge grant. One dollar will be contributed for each three donated locally.

The National Endowment for the Arts was established because "The Best Things in Life Aren't Free." St. Louis is one of about 30 metropolitan areas in the nation which have adopted a unified concept of generating private support for community cultural activities. The annual Arts and Education Fund Campaign is conducted throughout Metropolitan St. Louis by the Arts and Education Council, a federation of 118 cultural and educational organizations that was formed in 1963.

Give to the Arts and Education fund . . . a fund for the whole community and all its people.

Beaumont Foundation Gift

A $100,000 gift from the final distribution of the Louis D. Beaumont Foundation has been designated for the Members' Project in the Garden's planned Education/Visitor Orientation Center. Members of the Garden have conducted a fund raising campaign to pay the cost of the Workroom, which will be located in the new facility. With the Beaumont Foundation gift Members have raised about $140,000, slightly more than the goal for the project of $135,000.

The Louis D. Beaumont Foundation, which ceased operations in 1978, was named after one of the co-founders of the May Department Stores. David May, another May Stores founder and grandfather of Morton D. May of St. Louis, was married to Louis Beaumont's sister. Morton D. May served as president of the Foundation until it was dissolved in 1978.

The Workroom will be named the Louis D. Beaumont Room. A wall graphic for the Workroom will be created with the signatures of Members who donated to the project and will be presented to the Garden by the Members' Executive Board later this year.

The MISSOURI BOTANICAL GARDEN BULLETIN is published 12 issues per year monthly by the Missouri Botanical Garden 2345 Tower Grove Avenue, St. Louis, Mo. 63110. Second class postage paid at St. Louis, Mo. $5.00 per year. $6.00 foreign.

'Greenery' Coming to Museum Building

The Museum Building, which dates to the time of Henry Shaw, soon will house the Garden's new restaurant, "The Greenery". The new restaurant will offer Garden visitors lunches and snacks seven days a week, featuring sandwiches, salads and hot and cold drinks.

Garden Receives Restoration Grants

The Garden has been awarded three new grants for restoration of historic structures. State Senator John C. Scott and State Representative Russell E. Egan have announced that the Missouri Department of Natural Resources, through its Office of Historic Preservation, has committed $65,000 in matching funds for work on the Museum Building and on the 1909 addition to the Shaw Town House.

Mayor James Conway announced that the Community Development Agency has awarded $99,000 to help match these grants as well as last year's Historic Preservation grant for the Linnaean House.

The highest priority in restoration of both the Museum Building and the Town House addition will be given to exterior brick and stone work and to the roof and eaves. These grants also will make possible the rehabilitation of the electrical systems in the Town House addition, which is extremely important since much of the wiring is old and the heat and cooling systems are inefficient and expensive to operate.

Watch for the news! The Garden Gate Shop buyers are off to the gift shows in both New York and Dallas this year. Many new items will be offered so watch for the announcements next month.

Dr. Gentry To Study Tropical Species Diversity

Why are there so many more species of plants and animals in the tropics than in other parts of the world and why are the American tropics so much richer than other tropical areas?

A $9,000 grant from the National Geographic Society will help Garden staff member Dr. Alwyn Gentry test one theory which has been put forth to explain the fact of high tropical species diversity. The theory of Pleistocene forest refugia holds that during glacier-induced dry periods, the tropical wet forests were broken into isolated moist patches (refugia) around the edges of the Amazonian basin. During interglacial wet periods, such as we are in now, the theory holds, these patches spread out again forming a continuous forest. As former patches coalesced into continuous forest, conditions were right for rapid evolution of both plants and animals.

Several former refugia have been predicted, based mostly on correlations of high present rainfall and high species diversity of birds. It has also been predicted that these areas might be characterized by many less easily dispersed organisms, for example, seed plants. Dr. Gentry will analyze the floras of several proposed refugia and compare them with non-refugia in order to test this idea.

The Herbarium: Lending A Hand To Science and Worldwide Research

Small sheep's sorrel.

Much of the research activity at the Garden is centered in the herbarium. This collection of pressed and permanently mounted plants is used by the Garden's own research staff, undergraduate and graduate students from St. Louis area universities and colleges, visiting scientists and students, and through loans by scientists and students throughout the United States and other countries. Each specimen is unique, thus irreplaceable; each represents a particular plant from a particular location collected at a particular time. Furthermore, botanists will want to consult the specimens in the future, just as they have since 1545 when the first herbarium was founded in Padua, Italy.

In order to assure the maintenance of these collections for both contemporary and future research, they are curated by the 30 members of the Garden's botany department. Aspects of this curation include assuring the availability of the specimens to botanists who make personal visits to the Garden, making needed repair of specimens, acquiring new material for addition to the collection, and mounting this newly acquired material. Much of the curatorial activity in the herbarium is supported by a grant from the National Science Foundation.

However, making herbarium material available through loans is one of the most important aspects of curation of the collection. The maintenance of a herbarium collection can only be justified if these curatorial activities are carried out to make it accessible to researchers. By borrowing material, a plant taxonomist can accumulate in one place a large amount of material from many institutions and have this material readily available for study and comparison. Not only is the cost of consulting a large amount of material greatly reduced by borrowing, but the important work of making comparative observations between many specimens is facilitated greatly.

During 1978, the Garden made 308 loans, totaling 28,494 specimens, to other institutions in the United States and around the world. This is a substantial increase from the 22,609 specimens loaned in 1977, and is an increase of nearly 10,000 specimens over the total of 18,517 which were loaned in 1976.

The importance of the collection in the training of graduate students is reflected in the fact that more than one third of the specimens loaned last year were sent for student use. And the international importance of the collection is reflected in the fact that more than 25% of the specimens sent in 1978 were sent to foreign institutions.

During 1978, 76,782 new specimens were added to the collection, about the same number that was added in 1977. While few comparative statistics are available from other herbaria, this number greatly exceeds any of those reported for other major herbaria, both in the United States and overseas, in recent years. At the end of 1978, the official count of the herbarium was 2,657,177 specimens. However, it is estimated that the actual size is approximately three million specimens, since there are apparently about 300,000 specimens remaining in the collection which have never received an accession number: it was not until 1913 that accession numbers were stamped onto each specimen, and some of the early acquisitions have not yet been stamped. A routine stamping program is now underway, and all of the specimens in the collection should be stamped by about 1988.

The table below is a numerical summary of some of the activities in the herbarium for the year 1978.

	Vascular Plants	**Bryophytes**
Loans sent, total specimens (shipments)	27,654 (295)	840 (13)
to U.S. institutions	19,945 (198)	321 (9)
to foreign institutions	7,709 (87)	519 (4)
to students	10,354 (100)	84 (2)
to professionals	17,300 (195)	756 (11)
Specimens repaired	59,471	3,232
Mountings		
specimens newly mounted	76,782	6,605
specimens mounted when received, stamped	1,233	—
specimens newly inserted	78,015	6,605
Backlog of unmounted specimens (31 December)	31,640	580
Acquisitions received		
staff collections		
originals	16,690	1,458
duplicates, for exchange	62,250	4,300
purchases		
originals	6,835	3,330
duplicates, for exchange	7,519	288
exchanges	45,645	5,069
gifts	6,948	1,633
total acquisitions for addition to collection	76,118	11,490
Exchanges and gifts sent		
exchanges	31,225	134
gifts	8,035	612
Visitors, total	226	
from U.S.	191	
from abroad	35	

The Arboretum: A Very Special Place

The Arboretum is a special place, a year-round attraction. It includes an amazing variety of wildflower habitats and just when we think we've seen all it has to offer, up pops a new surprise. Many people know only its front doorway — the circular drive around Pinetum Lake. For those who will walk the trails beyond in all seasons, this is only the beginning, albeit a lovely one.

The abundance of summer brings whole fields of flowers — from daisies and black-eyed Susans to Queen Anne's lace and the milkweed family, colors ranging from pale pink to yellow to the brilliant orange-red of butterfly weed. These meadow flowers make a walk through Brush Creek Trail or other paths to the Trail House a constantly changing succession of color.

Late summer and fall add the reds and yellows of autumn leaves, the patches of blazing star, goldenrod and aster and the bright accents of berries on dogwood, bittersweet and wahoo. All this and persimmons, too!

Snow on the stately evergreens and hollies is a delight to the eye and spirit on crisp winter days. We rediscover the beauty of bare branches and buds getting ready for spring. The pale green of lichens and deeper green of mosses, often passed over in other seasons, now get the special attention they deserve.

Of course, the time many Arboretum fans await is the spring week when the whole sweep of meadows around Pinetum Lake is a mass of daffodils. Everyone hopes to see them at that peak of Wordsworthian perfection so difficult to predict.

But these seasonal productions are only a taste, glorious as they are, of what these beautiful acres have to offer. Walk slowly and look carefully to see the small and delicate treasures to be found along the miles of trails that wind through the area. They follow the upland ridges such as L'Abbadie Trace, with its purple cone flowers and larkspur; down through Boulder Trail and Long Glade where there are bird's foot violets, Indian paintbrush, the unusual leather flower and Missouri evening primrose, to name a few; to the River Trail along the Meramec.

The rich bottomland is a special plant community of moisture-loving flowers such as bluebells and Miami mist. Shaded by the towering sycamores and cottonwoods, hillsides of spring flowers cover the bluffs that lead down to the river. Bloodroot, Dutchman's breeches and the beautiful yellow celandine poppy are among the many spring beauties seen here. For each of these displays, there seems to be a particular day better than all others, and lucky the hiker who hits the right one.

Pinetum Lake at the Shaw Arboretum, a very special place. Spring wildflower walks will begin this year on March 20.

Spring wildflower walks will begin on March 20 this year and will continue each Tuesday through April and May. The early days are not noted for flowers in large numbers but we see the early hepatica, harbinger of spring, and snow trillium which will be missing on the later trips. These small early blossoms, few in number, are most welcome as the promise of things to come.

For the uninitiated, the Arboretum is on the south side of Highway 44 at the Gray Summit exit across from "the Diamonds." We meet at the gate and leave at 9:30 a.m. We carry our lunches with us, so a knapsack is helpful. Also recommended are stout shoes or boots and comfortable hiking clothing, jacket or sweater for warmth and rain gear for periods of inclement weather. We return to the gate at 1:30 p.m. Our walks are not difficult but there are some hills to climb, and although we are on paths, there may be a few rough or muddy spots.

We hope you will join my co-leader, Betty Nellums, our teacher, Art Christ, and me for one or all Tuesdays this spring. And we hope that you will find, in spite of days too cool, too warm, too wet or too buggy, one flower or view or glimpse of deer or a particularly beautiful tree that will make a memory for you to keep. We always do.

– Nell Menke

"Erin Go Bragh", Garden-Style

When it comes to finding leprechauns in the John S. Lehmann Building or wee folk by the dozen in the Plant Shop, leave it to John Dwyer and Debbie Colombo!

With St. Patrick's Day fast approaching, one would expect that the Garden would be fairly overrun by these magical creatures, scampering about the Climatron, dancing jigs by the lily pool or even hopping in and out of the lanterns in the Japanese Garden. But like most such scientific subjects at the Garden, investigation is required.

Dwyer, himself a son of the auld sod, began his leprechaun search in the herbarium.

"If there were a wee chance that one of the wee people could be found," he reasoned, "there's really only one place to look — the compactor labelled family 128, the legumes, where the clovers are located."

Shamrocks, leprechauns' lucky charms and a March special at the Plant Shop.

Dwyer based this approach on the fact that the clover family includes a wee item known as the shamrock; and the belief that where one finds a shamrock, one may find a leprechaun. Searching amid the compactor, Dwyer discovered a manila folder marked *Trifolium,* which contained no leprechauns but did include an herbarium sheet dated more than a century ago and bearing clover leaves pressed and dried. The sheet bore 17 pressed leaves of *Trifolium pratense,* the ordinary Red Clover.

The sheet had been part of the Garden's purchase in 1973 of the herbarium of Frank C. Seymour, with the aid of the Sunnen Foundation. Pasted on the sheet, beside the pressed leaves, are printed verses which celebrate the joy and magic of the clover.

The verses apparently were clipped from a 19th Century magazine or newspaper, published in New England, and included "Origin of the Four-leaved Clover", by Margaret R. Himes:

The queen of the fairies on a day
Was busy making clover;
And when her task was done, she found;
She had one leaf left over.

At first she knew not what to do,
Indeed, was almost frightened -
To waste a whole great clover-leaf!
But suddenly she brightened.

Then, calling her assistants, said:
I find, in making clover,
I must have somewhere counted wrong,
Here is a leaf left over.

So haste, and bring me quickly here
A clover from the meadows;
And I will tell it lovely tales
Of sunshine without shadows;

Of merry hearts and happy days,
And hours of rarest pleasure;
Of smiling faces, dancing feet,
And raptures without measure;

And then I will to it affix
This leaf which is left over,
Good luck shall always follow him
Who finds a four-leaved clover.

Mrs. Colombo, Plant Shop manager, approached her leprechaun search from a different angle. Reasoning that where there are shamrocks, there the wee folks abide, she has stocked the Plant Shop with an abundant supply of *Oxalis* the shamrock, in four-inch pots and hanging baskets. These plants will be featured in the Shop throughout March.

"And it's worked," she said. "Since the shamrocks arrived, we've seen hundreds of leprechauns here. In fact, part of the March 'special' includes a free leprechaun with each purchase.

"They're there alright . . . even if you can't see them."

Artist Mary Rose Wampler uses Garden library for research on four endangered species. Material was found to make detailed drawings of these rare plants possible.

Herbs: History, Use And Culture

This will be the 11th year the St. Louis Herb Society will teach the basics of herbing in a course sponsored by the Garden's education department. The two-day course will be held on succeeding Fridays, April 20 and April 27, in the John S. Lehmann Building. The course, limited to 50, is open to any individual interested in learning as much as possible about herbs in two days of intensive study, guided by experienced herbers. The fee is $16 or $12 for Members of the Garden. Register early, because applications will be taken on a first-come, first-served basis. Each participant is asked to bring a sack lunch each day, and to be prompt. Hours are 9:30 a.m. to 2:30 p.m.

Mary Clair Wenger, president of the St. Louis Herb Society, will welcome the group. Virginia Schreiber, who is both an honorary member of the society and the sole holder of its "compleat herber" award, will trace the fascinating history of herbs as they have benefited man from prehistoric times.

Dr. Walter H. Lewis, professor of biology at Washington University, will explore in words and pictures the use and abuse of medicinal herbs. Dr. Lewis is co-author with his wife, Dr. Memory P. F. Elvin-Lewis, of the authoritative "Medical Botany."

The basics of herb cookery will be discussed by Betsy Andrews, who has assembled an interesting group of herb cooking hints and recipes for course participants to try at their leisure. Betsy Andrews says her interest in cooking with herbs began when she translated from the Latin a cook book published in 1475.

The romantic and sentimental use of herbs in interpreting the "language of the flowers" will be discussed and illustrated by Betty Carlin, who has compiled an abbreviated guide to floral meanings for the course. Mary Edna Wenzel will demonstrate the making of a tussie-mussie, the traditional nosegay of herbs which can transmit wordlessly a message ranging from love to rejection.

The cosmetic and housekeeping uses of herbs, so important in historic times, will be presented by Barbara O'Brien, who also will show how to make potpourri, following a recipe which every participant will receive.

The second day's session deals with the herb garden and with growing herbs. It will open with a talk and slide presentation on planning the small herb garden, given by Joyce Driemeyer, who designs herb and other gardens professionally. Companion planting, herbal sprays and other natural forms of insect and pest control will be presented by Jeanne Montaldo. She practices what she preaches and has prepared herbal spray and other hints and recipes for course participants.

The propagation and culture of herbs will be discussed by Mary Holekamp, who will be assisted by Kerry Elgin. Slides will show step-by-step propagation. There also will be practical demonstrations of potting in which course members will participate. This will yield a number of seedling plants for each member to take home, together with several herb plants propagated in the Garden greenhouses for the course. Course members will receive sheets of detailed cultural instructions for their guidance.

The course is presented by the Herb Society's Education Committee. Its chairman, Mary Gamble, is being assisted by more than 20 society members.

Howard F. Baer To Autograph 'St. Louis To Me'

Howard F. Baer will autograph his new book, *St. Louis to Me,* from 2 to 4 p.m. Sunday, March 11, in the Garden Gate Shop. Mr. Baer is a member of the Garden's Board of Trustees.

Members who are unable to attend the autograph session may order the book by mail or telephone through the Gate Shop. The usual 10% discount will apply.

Board Of Trustees Election

Tom K. Smith, Jr.

The Garden Board of Trustees, at its January meeting, elected officers for the year.

Tom K. Smith, Jr., who has headed the Board for the past four years, was reelected president. Mr. Smith is senior vice president of Monsanto Company.

Other officers reelected at the January meeting are Robert R. Hermann, first vice president; Daniel L. Schlafly, second vice president; and Charles W. Orner, secretary. Mr. Hermann is president of Standard Container Company; Mr. Schlafly is president and board chairman of Arkansas Beverage Company; Mr. Orner is Garden assistant director.

Orchids as Houseplants . . . Care and Selection

Many misconceptions about the difficulty of growing orchids have arisen through the years, primarily because the culture of orchids was thought possible only by those wealthy or interested enough to devote a great deal of space, time and energy to these fascinating plants. It is still true that many kinds of orchids must be grown under exacting greenhouse conditions and that large numbers must be grown if one is concerned with having some in flower at particular times during the year. Orchids generally flower only once, occasionally twice, each year, depending upon and varying with prevailing environmental conditions.

However, if you are content to enjoy the blooms of a single plant for anywhere from two weeks to two months each year, depending upon the variety, you should consider the challenge of growing orchids in your home. A careful selection of the kinds listed below will enable you to enjoy flowering orchids in your home all year-round!

In order to grow orchids successfully in your home, you must understand the basic cultural needs of the plants in terms of temperature, light, humidity, water, air and food.

Orchids are classified horticulturally into three groups according to temperature requirements which reflect the general conditions prevailing in their natural habitats. Cool orchids are native to higher altitudes in the tropics or higher latitudes in the temperate zones. They require night temperatures of 50-55°F and day temperatures of 60-65°F. Intermediate orchids require night temperatures of 60-65°F and day temperatures of 70-75°F. Warm orchids are native to lowland tropical areas and require night temperatures of 65-70°F and day temperatures of 75-80°F. Generally, a 10-15°F difference in night and day temperatures is necessary to bring orchid plants into bloom.

Most orchids suitable for culture in today's homes belong to the warm or intermediate groups.

Orchids should receive as much light as they can without being sunburned (warning signs are leaves fading to yellow-white, turning brown, or developing scorched dark spots which dry out). In the home, a window facing south or east and which receives six hours of sun a day is best for growing orchids. In the summer, plants should be protected from the direct rays of the sun by a thin mesh curtain or by being placed outdoors under high shade. Artificial light provided by fluorescent bulbs can be used as a supplement for many of the higher light-requiring orchids (e.g., cymbidiums) or as a sole source of light for many kinds which benefit from growing in a cool basement (e.g., green-leaved paphiopedilums, miltonias).

Moth orchid, which blooms in sprays.

Sufficient atmospheric moisture for most home-grown orchids can be provided by placing them on trays filled with gravel into which water has been added. Always keep the tray partially filled with water but do not allow the plant pot to come in contact with the water in the tray. Plants also benefit from the increased humidity resulting from being grouped closely together or grown in an actively used bathroom, kitchen or laundry room. In warm weather, plants should also be misted. A general rule of thumb is to keep the relative humidity around your orchids about 10 percentage points lower than the air temperature (in degrees Fahrenheit).

Home grown orchids which are epiphytic (i.e., grow on other plants) in nature (e.g., *Cattleya, Epidendrum, Laelia, Oncidium, Phalaenopsis)* should be watered thoroughly about once a week, being allowed to dry out somewhat between waterings. The orchids which are terrestrial (i.e., grow on the ground) in nature (e.g., *Paphiopedilum,* some cymbidiums) should have their potting media kept evenly moist and should not be allowed to dry out completely. In general, orchids will benefit from more water during the sunnier, warmer months of the year when most are actively growing (April through September).

Orchids require fresh air and should be given as much as possible without being exposed to strong or constant drafts of cold or hot, dry air. Adequate ventilation is particularly important in the case of orchids grown in terrariums or Wardian cases.

Orchids suited for home culture in the St. Louis area are best potted in fir bark and should be fertilized with a standard high nitrogen fertilizer twice a month from March through October and once a month from November through February. Generally, plants should be repotted every two years, after blooming or when new growth begins to appear. If you have had no experience in dividing and potting orchids, it would be best to refer to a standard book on orchid culture or consult a trained person.

The Garden offers a short course on home orchid culture every year. This year's course will be given on April 21; you may register for it by calling the education department.

Many orchids will be on view at the Garden during the Orchid Show, which continues through March 11. A trip to the Garden at this time may well start you on a longer orchid path!

–Charles A. Huckins, Chairman
Department of Indoor Horticulture

Tower Grove House Is Ready For Spring

Tower Grove House is ready for spring. Henry Shaw's study, which overlooks the herb garden, is now resplendent with new wallpaper — the paper and border pattern based on an appliqued patchwork design found in a 19th century quilt on display in Henry Ford Museum, Greenfield Village in Dearborn, Michigan.

The paper is the gift of Mrs. Arthur Hoskins of Santa Barbara, California, a former St. Louisan. The Historical Committee, in consultation with Mr. George R. Brooks, selected the paper.

Luncheon is served at Tower Grove House on Tuesdays and Thursdays. Please call 773-9000 for advance reservations.

1979 Spring Lecture Series

This series features representatives from local horticulture societies who will share their expertise. All lectures are scheduled for Wednesdays at 10:30 a.m. and 8 p.m. in the John S. Lehmann Building Auditorium.

March 7	"Herb Trees and Herb Shrubs in the Landscape" Joyce K. Driemeyer St. Louis Herb Society
March 14	"Growing Miniature Roses" Mary Hess 10:30 a.m. Gerhard Weber 8:00 p.m. Rose Society of Greater St. Louis
March 21	"An Introduction to Orchids" Robert Nagel Orchid Society of Greater St. Louis
March 28	"Violet Growers Are Not Magicians" Edd Stretch Smith Saintpaulia Society
April 4	"Behold the Beauty Roundabout" Lillian Mackle Henry Shaw Cactus Society
April 11	"The Dahlia, Everybody's Flower" Oliver Ruffing Rolla Zufall Greater St. Louis Dahlia Society
April 18	"Boxwood Gardens" Jack Horner Boxwood Society of the Midwest

Nora Stern, Woman Of Achievement

Nora Stern

Nora Stern, president of the Garden's Executive Board of Members, has been selected by the *St. Louis Globe-Democrat* as a Woman of Achievement for 1978. Honored for her contributions to Civic Beautification, Mrs. Walter G. Stern is familiar to Members and staff alike. The Garden's sincere congratulations are offered for this well-deserved tribute. Nora became a member of the Executive Board of the Members in 1966 and has served two terms as its president, 1969-1972 and 1977-1979. She served as chairman of the 1976 Chrysanthemum Ball, which raised $33,000 for Garden development.

In addition to the many roles that Nora plays at the Garden, she is a trustee of Mary Institute and has been active in support of the Museum of Science and Natural History and the Missouri Historical Society.

The Garden joins the *Globe-Democrat* in saluting Nora as a 1978 woman of exceptional achievement.

In Memoriam: Claude Johnston

Garden staff and members were saddened by the death of Claude Edward Johnston, January 5, 1979, at the age of 58.

Mr. Johnston began his work at the Garden in May of 1945. Though his career here involved him in many areas, his primary concern was the growing of the plant materials to be used in the horticultural displays. He also designed and installed some of the floral displays for the major shows — principally the Poinsettia shows of 1967 and 1977.

Among his many accomplishments, Mr. Johnston was a photographer; many of his photographs appeared in the *Bulletin* over the years. Mr. Johnston demonstrated a wealth of knowledge in his capacity as floriculturist. He thrived on challenges in the greenhouse ranges — always willing to try something new. His artistic sense always was apparent in the quality of the beautiful plants he produced.

He is survived by a daughter, Gina Maria, 13; a son Anthony Charles, 11; and two brothers. He will be missed by all who worked with him and knew him as a devoted employee and friend.

The days get longer and longer, a sure sign that spring is on the way. The weather can still give the gardener second thoughts, however. Though everyone is anxious to get started, remember that March can offer winterlike weather as well as a promise of spring.

Vegetable Garden

When preparing the soil in the vegetable garden, add superphosphate at the rate of four to five pounds per thousand square feet; and three to four pounds of a balanced fertilizer such as 5-10-5 or 6-12-12 prior to planting. Work both in well. Early crops should go in as soon as the soil can be worked. Plant cabbage, cauliflower, Brussels sprouts, spinach, onions and beets now, for harvest before late April.

Interplanting of small, fast growing vegetables between rows of slower growing varieties makes best use of space. The faster growing varieties are harvested, leaving space for the larger, later maturing vegetables to develop. The interplanting tends to shade the ground, keep weed growth down and help to retain moisture in the soil.

Raised Beds

Beds that are mounded or raised and framed provide better drainage and the soil tends to warm more quickly. Mix compost, sand and soil to build beds six inches higher than the surrounding area. The beds should be no more than four to five feet wide so that the gardener can work easily from both sides. Compacting of soil is eliminated since the gardener rarely steps in the beds.

Pathways can be covered with straw or wood chips, making the garden accessible in wet weather.

For gardeners who find themselves with little space for a vegetable garden, there are many new varieties that are compact and can be container grown. The container grown vegetables not only provide produce but make an attractive addition to the garden scene.

Winter Damage

This has been another severe winter with a great deal of snow and ice. Though the snow provides a good mulch it also reflects light, warming the plant above the snow line, causing some damage. Wait until new growth begins to show and then prune back to good wood.

Many trees and shrubs have been damaged by the ice. Remove broken limbs that are still hanging if you've not already done so. Trim away injured branches. Check to be certain that trees haven't split at the forks. Severely damaged trees and shrubs would probably benefit from an application of fertilizer to increase their vigor and growth.

It is still too early to prune roses and remove mulch. Wait until all signs of cold weather have passed and then gradually remove mulch over a period of a week to 10 days. Then prune back according to variety and damage. If rose cones have been used for winter protection, they should be removed during the first part of the month.

Miscellany

Bird houses and nesting boxes should be in place or those that are up should be cleaned. Migratory birds will be arriving while the winter birds are heading north.

House plants should be showing appreciable growth. Increase water and feed with a dilute fertilizer. Check plants to determine if they need repotting.

Plant trees and shrubs, especially those that should be planted when dormant, as soon as the ground can be worked easily. Evergreens can be planted as well. Begin to mulch new and established plantings to conserve moisture.

–Barbara B. Pesch

NSF Grant To Support Chromosome Study

Information concerning chromosomes has become increasingly important in studies of plant systematics in recent years. Features of their number, morphology and behavior during cell division have been studied and proven useful. Variations in chromosomes provide important comparative data useful in interpreting interrelationships and in indicating the direction of evolution among groups of plants. The most important variable of chromosomes is their number.

Reports of chromosome numbers have been accumulating since about 1910, and in recent years more than 5,000 counts have been published in about 500 different research articles each year. Several books have appeared which attempted to list all known chromosome numbers, but these are out-of-date before they are published. In 1956 an annual Index to Plant Chromosome Numbers was begun, with the goal of maintaining an up-to-date compilation, readily available to botanists around the world. In 1978 the headquarters of the Index to Plant Chromosome Numbers was moved to the Missouri Botanical Garden, where it is edited by Dr. Peter Goldblatt, B. A. Krukoff Curator of African Botany.

Dr. Goldblatt will act as coordinator and editor of this internationally important project. He will be assisted by other Garden botanists and by a team of botanists from other institutions. The team will submit abstracted information to him for compilation. The data will be typed in computer readable form and sent to the United States Department of Agriculture computer in Beltsville, Maryland. The computer will automatically assemble the some 5,000 individual counts into a systematic list, and set the type from which the annual indexes will be printed.

The Garden has received a five year, $21,000 grant from the National Science Foundation to assist with the compilation of the annual indexes.

Calendar Of Events

Through March 11	Orchid Show 10 a.m.-4:30 p.m., daily Climatron
March 3-4	Spring Garden Workshop 10 a.m.-5 p.m., March 3 Noon-5 p.m., March 4 John S. Lehmann Building
March 17-April 15	Spring Flower Show 9 a.m.-4:30 p.m., March 17-31 9 a.m.-5 p.m., April 1-15 Outdoors, tent
March 31-April 22	"Plants of the Bible" Exhibit of plants from Biblical times 9 a.m.-4:30 p.m., March 31 9 a.m.-5 p.m., April 1-22 Mediterranean House

Members 'Getaway' Tours

Spectacular scenery awaits Members who sign up for any of the 1979 tours described below.

June 12-26	Scandinavia, including a three day cruise from Helsinki to Leningrad.
Aug. 23-31	Canadian Cariboos by 'Copter — a tour of mountain experiences including Banff, Lake Louise and Jasper Park.
Sept. 20-28	Ireland Castle and Garden Tour, featuring Shannon, Dublin, Cork and Tralee.

For further information please call the Members' office, 772-7600, extension 25.

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In Honor of Dr. Robert M. Bell's 78th Birthday
Mrs. Robert M. Bell

In Honor of Mrs. M. Coppersmith's Birthday
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MISSOURI BOTANICAL GARDEN BULLETIN
2345 Tower Grove Avenue
Saint Louis, Missouri 63110

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Missouri
Botanical
Garden
Bulletin

Daffodils, signs of spring and the Spring Plant Festival. See Page 4.

Dr. Hoch's Study: Epilobium In North America

The adage, "If you've seen one, you've seen them all," is something Dr. Peter Hoch may sometimes wish were true. As a graduate student and now a research associate at the Garden, Peter has been studying dried herbarium specimens of the genus *Epilobium,* "willow-herb," in order to learn how it has evolved, where it occurs, and what characterizes the species. These specimens have been sent on loan to the Garden from more than 120 other herbaria and must represent the largest number of specimens ever accumulated for a single study.

The last major study of *Epilobium* was published in 1884 and was worldwide in scope. It included 5,000 North American specimens. Peter's study involves only the North American species of *Epilobium* and is based on 85,000 specimens.

For most species, no herbarium contains every specimen ever collected, so there is a constant exchange of loans among the world's 5,000 herbaria. During 1978 alone, the Garden's herbarium, which ranks twelfth in size among these 5,000, loaned more than 19,000 specimens to 81 institutions in the United States and about 9,000 additional specimens to foreign herbaria. Peter's *Epilobium* material came from herbaria in the United States, England, most European museums, and Russia. Most loans are simply sent through the mails, but Peter made a trip to West Coast herbaria and personally transported 11,000 specimens back to Missouri in a rented truck.

The specimens are stored in the Garden's herbarium in the John S. Lehmann Building and fill one and one-half aisles of compactor space. The enormity of this project is further emphasized by comparing its size to other statistics. About one-quarter of a million specimens are loaned by the various herbaria in the United States each year. The *Epilobium* material represents 34% of that total, but of course, it was borrowed over a period of three years. There are about 1,100 herbaria in the United States, with a total of about 46 million specimens. Thus the average herbarium contains about 42,000 specimens. In other words, the material which Peter is studying represents the holdings of about two average U.S. herbaria.

Dr. Peter Hoch, research associate, plots distribution of Epilobium *specimens collected in North America.*

(continued on next page)

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April 1979

Epilobium . . . *(continued from page 1)*

In spite of the impressive size of this loan, the number of sheets he accumulated was hardly Peter's most important concern. He is seeking important insights into questions of evolutionary biology. The aim of his study is to help make the Onagraceae (evening primrose family), of which *Epilobium* is the largest genus, the best known group of organisms — plant or animal — on earth. Other students of Peter's advisor, Garden director Dr. Peter H. Raven, are doing similar studies with other genera in the Onagraceae.

Just why he chose to study *Epilobium* and what aspects of its biology he is focusing on are important to know. *Epilobium* interested Peter because it represents an evolutionarily dynamic group. The difficulty in studying this group and, therefore, its attraction, arises from the fact that the species are diversifying. Just how plants speciate and what allows them to exploit new habitats can be learned by studying an actively evolving group such as *Epilobium*.

Peter was also attracted to these herbaceous plants because of their alpine habitat. Since recognition of plant units in the field is the basis for many taxonomic decisions, his field work was a critical part of his study. He made trips to Alaska, including Attu Island. Other trips, including those to the Rockies and other western mountains, allowed him to collect more than 2,000 specimens.

Field work occupied 25 per cent of Peter's time; greenhouse work, which involved growing more than 1,000 strains from seed collections, hybridizing and examining plants, took another 25 per cent. The remainder of time was spent in the herbarium. This work included measuring plants and using information on the labels to map the range of the species.

When Peter's study is complete, each specimen will be annotated with a slip of paper giving what he considers the correct name for that plant. In this way, other botanists will know what he thought about the plant and be able to better appreciate and identify other collections.

Spring Arrives At Garden Gate

The Garden Gate Shop is ready for spring, with new items purchased by its buyers at New York and Dallas gift shows. Flowers are everywhere — on china, kitchen towels, pot holders, aprons, glasses and ice buckets. Bright pillows will add fresh accents to any room.

British gardening tools will be available for the first time. In addition, there are many new gardening books, the highlight being *The Complete Book of Gardening*, edited by John Elsley.

Glass and brass were featured everywhere, so there are lots of new vases in blown, etched and painted glass.

When thinking of spring, plan a visit to the Garden Gate Shop to see all the new items.

G. U. Wise Named Shaw Arboretum Head

George U. Wise

George U. Wise has been named superintendent of the Shaw Arboretum, it was announced by Dr. Peter H. Raven, Garden director.

Most recently, Mr. Wise was director of the Awbury Arboretum of the City Parks Association in Philadelphia, Pennsylvania. Serving in this capacity, he managed the arboretum and developed comprehensive teaching programs for the institution. Mr. Wise received a master's degree in ornamental horticulture through the Longwood Program. He also has a master's in entomology and an undergraduate degree in biology.

Mr. Wise resides with his wife and two children at the Shaw Arboretum.

Members Tours

Aug. 23-31	Canadian Cariboos by 'Copter — a tour of mountain experiences including Banff, Lake Louise and Jasper Park.
Sept. 20-28	Ireland Castle and Garden Tour, featuring Shannon, Dublin, Cork and Tralee.

Contact the Members' Office, 772-7600, Ext. 25, for further information.

Garden Club Tour

May 18 through June 3, 1979, special trip to the Isle of Brittany, Normandy and Paris. Private homes, gardens and collections. Cost is approximately $2,200 plus $200 tax deductible contribution/deposit made payable to Missouri Botantical Garden. Mail deposit to Foster Travel, 818 Olive Street, St. Louis, MO 63101. The trip is sponsored by the Garden Club of St. Louis.

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Special Events Highlight Springfest in April

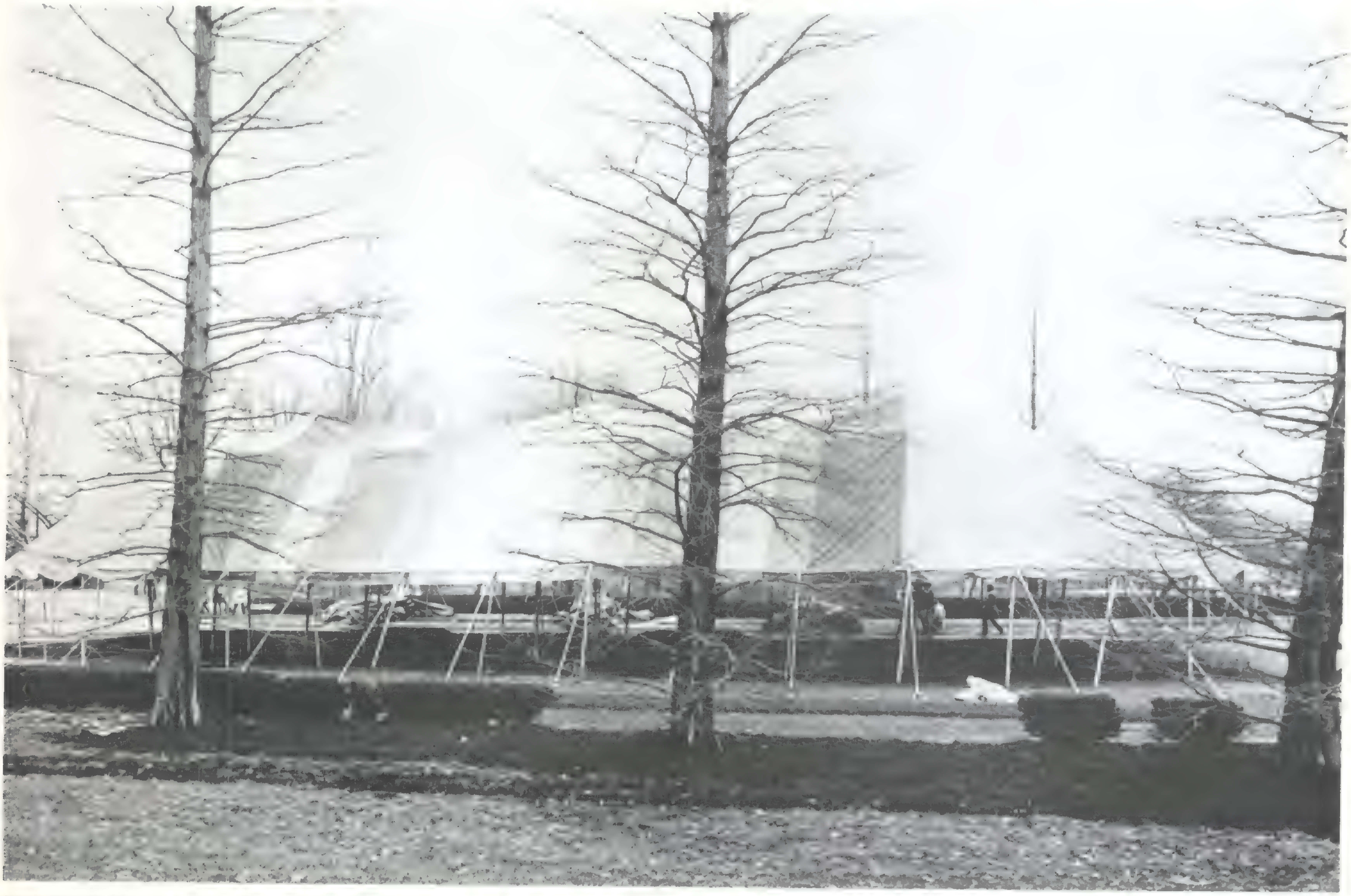
A number of special events will highlight continuing Springfest activities in April. A family picnic day, April 1, will give families a chance to see the flower show, bring a picnic meal and dine on the Garden grounds. Guided tours will be offered at 1 and 2 p.m. and musical entertainment in the afternoon will be provided by the seventy-piece brass and reed Meramec Community College Symphonic Band. The Meramec band plans a performance with an international theme, including selections from France, Scotland, Ireland and Cuba. The Garden will be open during regular hours — 9 a.m. to 5 p.m.

For those who would like to have questions answered regarding woodland wildflowers, a workshop will be offered on April 7-8. A staff horticulturist will be in the English Woodland Garden from 2 to 4 p.m. both days to informally discuss plant materials and answer questions.

If you plan a visit to the flower show on April 8 from 2 to 5 p.m., you will be entertained by a jazz concert. The area south of the Desert House will be the concert site. Enjoy the show and this special outdoor concert.

Providing the jazz entertainment will be Jasmine, a St. Louis jazz duo which combines saxophone, piano and guitar in presenting both standard and original material.

Springfest under canvas, the 1979 Spring Flower Show.



The Garden's new festival tent, up for the first time for the Springfest Flower Show and awaiting attachment of side walls.

Spring Plant Festival Set For April 21-22

The second annual Spring Plant Festival and Sale will be held April 21-22 from 9 a.m. to 5 p.m. Members will be offered a special opportunity to make their selections on Friday, April 20, from 3 to 6:30 p.m. The discount for Members will be 20 per cent, while non-members will receive a 10 per cent discount.

The sale will be held in the Head House, Orchid Range and Plant Shop. Enter through the West Gate of the Visitors Parking Lot.

Since the Garden is a collection of unique plants, St. Louis area gardeners often request sources for such plant material. This year, the plant sale will include many of the unusual varieties that can be seen growing at the Garden.

The sale will feature an array of tropical plants, Burpee seeds, flowers, vegetables and herbs. Forty-one kinds of herbs will be offered, ranging from anise to wormwood. Scented geraniums in a wide array will be featured. Annual bedding plants in a rainbow of colors for every location will be on sale. Select your vegetable plants as well.

Hanging baskets will be cascading with fuchsias, ivy geraniums and coleus. Some perennials and spring bulbs will be offered as well.

Don't miss this gala occasion and the unique opportunity to purchase plant material.

Not For Women Only

Members are urged to attend the Annual Spring Luncheon sponsored by the Women's Executive Board at 10:30 a.m. on Monday, May 7, 1979, in the auditorium of the John S. Lehmann Building. Installation of the new officers of the Board will take place as well as a review of the year's activities. A special program has been developed for this event. A buffet luncheon will be served following the meeting. Reservations for the luncheon may be made at $4.50 per person. Look for your invitation and reservation form in the mail.

Arboretum Day: A Walk Among The Wildflowers

A special day has been planned for Members and their families. Circle April 29 on your calendar. Shaw Arboretum in Gray Summit will provide the setting for lunch, guided wildflower walks and nature awareness tours.

The hours are 11 a.m. to 4 p.m. Bus transportation will be provided from Westroads parking lot. Reservations are required for box lunches and bus transportation. Invitations and more information will be sent to Members.

Plan to wear comfortable clothes and good hiking shoes.

Calendar Of Events

March 31- April 22	"Plants of the Bible" 9 a.m.-5 p.m. daily Mediterranean House
April 1	Springfest Family Picnic Day 9 a.m.-5 p.m.
April 7-8	Woodland Wildflower Workshop English Woodland Garden 2-4 p.m.
April 8	Springfest Jazz Concert South of Desert House 2-5 p.m.
April 14	Special Guided Tours Noon, 1, 2 and 3 p.m.
April 21-22	Second Annual Spring Plant Festival and Sale 9 a.m.-5 p.m.
April 22	Flower Sunday 11 a.m. Christ Church Cathedral
April 29	Arboretum Day Gray Summit 11 a.m.-4 p.m.

'The Complete Book of Gardening'

Available now in the Garden Gate Shop is a new gardening book edited by John Elsley, the Garden's Curator of Hardy Plants.

Entitled "The Complete Book of Gardening," the book was first edited by Michael Wright and published in England. Our edition was specially edited for this country by John Elsley. The book is lavishly illustrated with more than 1,000 illustrations and "how-to" drawings. Thirty garden writers were involved in researching and writing this helpful book.

The book will assist the expert and beginner alike. How-to instructions are described in easily understandable terms. The information is both practical and inspirational. Chapters cover all areas of gardening from basic garden design to garden features, decorative garden plants, vegetable and fruit gardens, gardening techniques and technicalities.

The book is a must for any gardener's library.

Panama's Flora To Be Completed Next Year

A joint symposium, to be held in Panama in April, 1980, and sponsored by the Missouri Botanical Garden, the Universidad de Panama and the Smithsonian Tropical Research Institute, will signal the completion of the Flora of Panama.

This monumental undertaking was begun in 1943 and upon completion early in 1980 will result in more than 7,000 pages and hundreds of illustrations in which more than 5,000 species are represented, cataloged, keyed and described.

The symposium will include four days of meetings where participants will hear invited speakers, exchange scientific information with colleagues and have the opportunity to go on field trips. Program topics will include the vegetation of Panama, man and the landscape, and botany and fauna of Panama.

The contributions will be published as an integrated volume on the botany and natural history of Panama.

Tree Planting, A Living Memorial

Have you ever been at a loss for a particularly special gift or remembrance for someone special? Here is a unique gift suggestion.

The Garden will plant a tree as a living memorial on the occasion of a birthday, an anniversary or just as a thoughtful remembrance. The tree would be enrolled permanently in the plant records and identified in the field by a zinc tag affixed to the tree. The tag identifies the person to whom the dedication is made and the name of the donor.

Contact Alan Godlewski, department of Landscape Horticulture, for futher information.

'Roots' Coming April 24

Beginning Tuesday, April 24, a special "Roots" exhibit on loan from the Morris Arboretum in Philadelphia will be on display in the John S. Lehmann Building lobby. The exhibit was designed to give the public a more vivid impression of the underground world of plants. Primary focus is on the roots of trees, their structure and interactions with the surrounding area and the invasions of the urban environment.

New Schedule In Effect

A new rate schedule for Garden admission went into effect on March 1, including a new family rate, $6.00 for 2 adults and their children.

Other new admission charges are as follows: adults, $2.50; children (6-16) $1.00, and under six, free. Senior citizen annual pass remains $5.00.

Members will continue to enjoy free admission.

OLD NEWSPERSON'S DAY – Marie Cook, Members' record secretary, does her part by peddling newspapers during the St. Louis Globe-Democrat's *recent Old Newsboy's Day.*

Gardening in St. Louis

Spring has been so long coming that area gardeners are more than anxious to begin the usual early tasks. But don't rush the season.

Winter damage may be evident again this year, but growth may still occur on winter damaged plants. Wait awhile before pruning or removing plants. Growth may emerge from the base.

Trees and shrubs should be planted as soon as the soil is workable. The season for planting bare root trees, shrubs and rose bushes is not too long. Plant material that is balled and burlaped or in cans may be planted with ease.

Spring Cleanup

Continue spring cleanup of lawns and flower beds. It is best to keep mulches around shrubs—especially azaleas and rhododendrons. If removed for clean-up, it should be replaced to the depth of four or five inches. The mulch keeps the weeds down, keeps the soil evenly moist and as it breaks down, supplies nutrients to the soil. Spring is a good time to reapply mulches before weeds have a chance to get started.

Lawns should be cleaned thoroughly if that has not been done already. Fertilize with a balanced fertilizer at the rate recommended by the manufacturer. Apply crabgrass pre-emergent killer around the middle of the month. Do not use weed killers on newly seeded areas; wait at least six weeks.

Adjust mower to cut one and one-half inches above ground level. Be certain mower blades are sharp.

Rose Care

Roses should be pruned in the first half of the month before growth begins. Gradually pull away mulch from around the plants. Work in superphosphate around the base of the plant—about one cup per plant. Apply organic material as a surface mulch to the depth of two inches to help conserve moisture and keep down weeds.

Seed and Plant Selection

When selecting seeds and plants from area garden centers, select the new disease resistant varieties. There are many new selections this year, so don't miss the new ones. If seeds and plants have been started on the windowsill or in the greenhouse, feed to keep growing vigorously. Be certain they receive plenty of light so seedlings don't become leggy.

Cooler growing plants should be hardened off gradually toward the end of the month. Place outside for short periods during the day in a sheltered area. Increase time periods.

It is too early to put warm growing plants such as tomatoes out—wait until mid-May. But you can plant hardy vegetables if you have not done so.

Watch indoor plants as day length continues to increase. Growth will be picking up once again. Fertilize with a dilute, balanced fertilizer.

Most of all—enjoy spring!

–Barbara B. Pesch

Flowering Bulbs, Colorful Signs Of Spring

Among the harbingers of spring in the minds of most gardeners are a myriad of flowering bulbs — crocus, narcissus, tulips and others. But spring is also the time to consider planting some of the tender "bulbs" which flower during the summer. This group of tender plants will in most cases give a pleasant display of flowers or foliage until frost.

First, there is the gladiolus. Much hybridizing has taken place in this group of plants and many more sturdy-stalked garden varieties have been developed. They are divided primarily into the tall varieties which come in an array of colors from cream and red to lavender and lime-green as well as multicolored types. The second grouping is the baby gladiolus with a more flaring flower form and lesser stature, making them far easier to incorporate in the summer border, where they combine nicely with some of the taller perennials.

A cousin of the gladiolus is *Acidanthera bicolor*, also called Abyssinian sword lily. This colorful native of tropical Africa has fragrant, creamy white flowers blotched in the center with brown, blooming in loose spikelike clusters in late summer and early fall. Both the gladiolus and *Acidanthera* should be planted in spring after danger of frost is past, in full sun in well drained, friable soil. Since these are tender corms they should be lifted in fall after the first frost and stored in a cool dry place.

Another plant which ranks as the queen of the summer garden is the lily. Lilies are true bulbs and come in two planting groups — those which are best planted in fall and those which should be planted in spring. These are primarily the *Lillium auratum* hybrids and *L. speciosum* hybrids. Like most bulbs, they require excellent drainage to help prevent rotting. Slightly acid soil conditions are also beneficial. Since lilies are gross feeders they need a porous, well aerated soil rich in humus. Well balanced fertilizer will encourage strong stalks. Keep the nitrogen level low, i.e., 5-10-10. A light covering (two-three inches) of mulch will likewise keep the roots cool. Lilies require sunlight to bloom. Light until at least 2 p.m. will generally be adequate. Lilies, like gladiolus, come in a lovely range of colors and lend themselves to incorporation in the garden scheme. They are at their best in perennial borders, en masse by themselves or at the edge or a woodland area.

(continued on next page)

FLOWERING BULBS . . . *(continued)*

Another of these spring planted "bulbs" is the *Caladium candidum,* which may be planted out of doors when the night temperatures are above 65°F. They should be planted in shaded or semi-shaded locations where they are sure to give a bright note of color. Caladiums require a rich, porous soil high in organic matter and are best fertilized every two to three weeks with half strength fish emulsion during the growing season. Water caladiums freely during the growing season. Toward the end of summer as temperatures drop, reduce the level of watering. As leaves begin to yellow, withhold water until foliage dies back; then lift the tubers, shake off excess soil, dust with a fungicide and store in dry peat moss over winter at temperatures no lower than 60°F. To produce a compact plant, start plant upside down in damp peat moss at 75° to 85°F. As soon as the leaves appear, remove the tuber and plant right side up one inch deep.

Bulbs can be a dependable and colorful addition to the garden in all seasons, not just in the spring.

—Alan Godlewski
Chairman, Landscape Horticulture

Notes From Tower Grove House

New dried flower arrangements have been made and donated to the House by Mrs. Frederick M. Robinson, Jr. Be certain to see them on your next visit.

* * *

A fall tour will be sponsored by the Historical Committee of Tower Grove House in October — four days in Wilmington, Delaware, to visit Winterthur. Watch for further details or call 773-9000 for information.

* * *

Viola Wagstaff, a tour guide in the House for five years, passed away on Sunday, February 11. She will be missed by her many friends.

1979 Spring Lecture Series Continues

This series features representatives from local horticulture societies who will share their expertise in areas of specific related interest. All lectures are scheduled for Wednesdays at 10:30 a.m. and 8 p.m. in the John S. Lehmann Building Auditorium.

April 4	"Behold the Beauty Roundabout" Lillian Mackle Henry Shaw Cactus Society
April 11	"The Dahlia, Everybody's Flower" Oliver Ruffing Rolla Zufall Greater St. Louis Dahlia Society
April 18	"Boxwood Gardens" Jack Horner Boxwood Society of the Midwest

Garden To Honor Volunteers

National Volunteer Week is April 23-29. The Garden will observe the occasion by honoring its more than 400 devoted volunteers on Monday afternoon, April 23. A lecture entitled, "Memories of 1904," will be given by Mrs. Virginia Horner, wife of a volunteer. The lecture, illustrated with slides, will reflect upon the World's Fair held in St. Louis and will include a view of Shaw's Garden at the turn of the century.

An award ceremony will follow the lecture. Outstanding volunteers will be presented award pins — a new Garden program.

The volunteer program has grown over its six year history from an original group of 100 to the present total exceeding 400. The Garden could not function without this devoted group which works in virtually every area of the Garden and contributed more than 42,000 hours in 1978.

Volunteers are always needed, so if you can give three hours or more a week, please contact the volunteer office, 772-7600, extension 13 or 19. Volunteering is an opportunity to learn as well as a satisfying way of giving.

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In Honor of Mr. and Mrs. John S. Marsalek 65th Anniversary
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In Honor of Mrs. William Schield's Birthday
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In Honor of Mrs. Nora Stern, 1978 Woman of Achievement
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In Honor of recovery of Mrs. Rhoda Turner
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MISSOURI BOTANICAL GARDEN BULLETIN (USPS 354-860)
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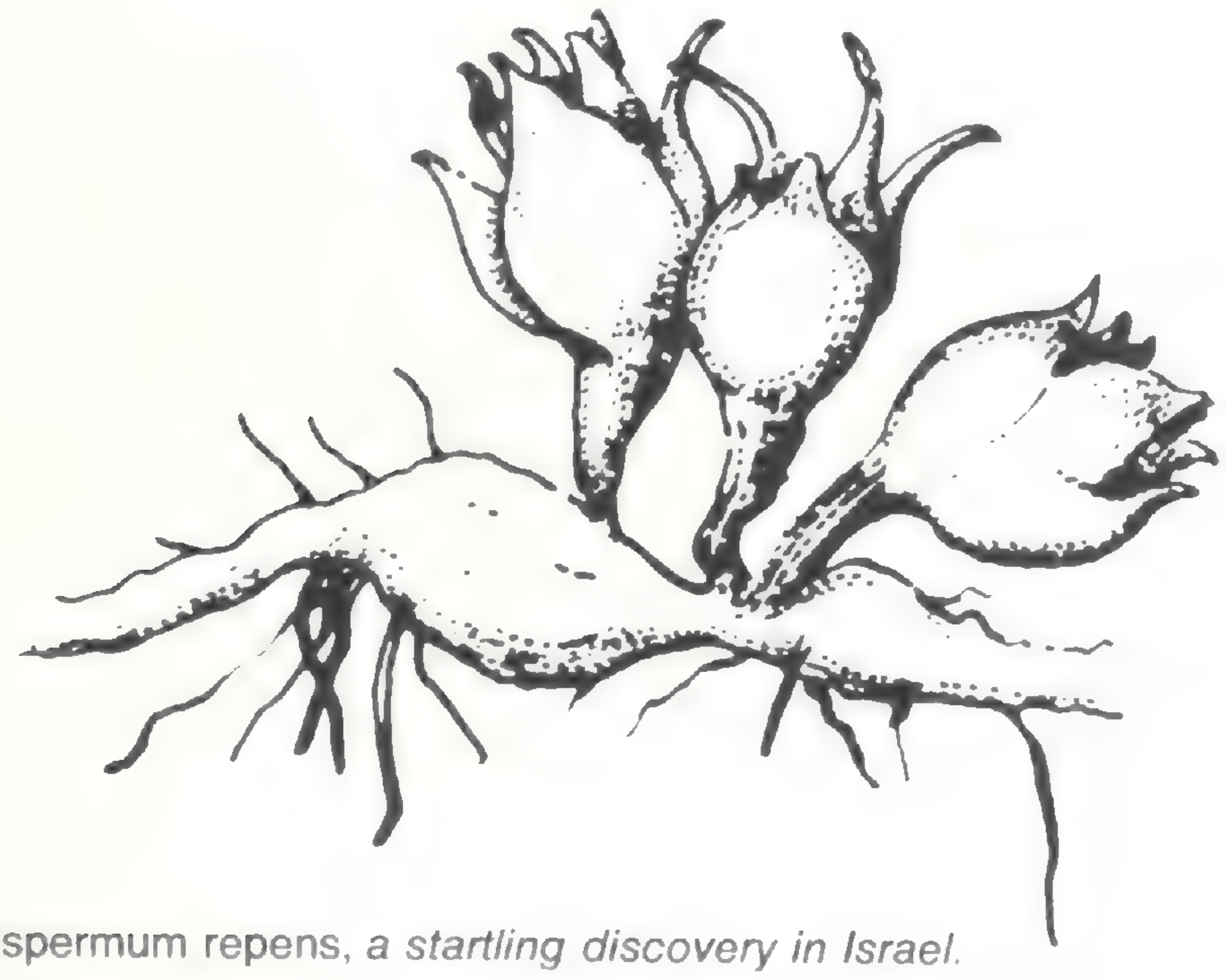
Missouri
Botanical
Garden
Bulletin

Spring things – see pages 6 and 7.

The Mosses of Israel: A Field Report

One of the research projects in which the Garden has been involved for the past several years is a study of the mosses of Israel. There are many mosses in Israel, about 200 kinds. Comparatively, there are about 300 in Missouri, which is about seven times as large as Israel. The study is a cooperative project with Hebrew University, Jerusalem. Dr. Marshall Crosby of the Garden's staff spent three weeks during March in Israel collecting and studying mosses. Upon his return, Dr. Crosby filed the following report.



Gigaspermum repens, *a startling discovery in Israel.*

On March 5, after finishing breakfast of lox and bagels on El Al flight 010 from New York to Ben Gurion Airport, the plane landed and I was greeted by my Israeli colleagues, Drs. Clara Heyn and Ilana Herrnstadt, with whom I am collaborating. In place of Clara's usual greeting, "What's new in science?", her first question was, "When is Jimmy Carter arriving?"

I had left St. Louis 17 hours earlier, and during that time the dramatic announcement of the president's diplomatic trip to the Middle East was made. Of course, I knew nothing about it, and they had to fill me in with what details they had at that time.

During the next three weeks a lot was new in science, though at times we jokingly remarked that Carter was hindering progress. Since the University is located across the street from the Knesset, when peace treaty negotiations were taking place there, it was often difficult to get to and from the campus. We traveled about 1500 miles, collected at about 45 different places and gathered several hundred new moss specimens for our studies. Among these were several species which had not previously been collected in Israel. Some of these discoveries fill conspicuous gaps in our knowledge of the distribution of the mosses involved, and their occurrence in Israel was not surprising. For example, we discovered a large moss called *Antitrichia breidleriana* growing in a rocky gorge east of the Sea of Galilee. This species was known from many areas around the Mediterranean Sea, including nearby Lebanon, but it has not previously been reported from Israel.

One of the objects of this year's field work was to relocate a moss first discovered in Israel by the Garden's director, Dr. Peter H. Raven. He was there in 1975 at the invitation of the Hebrew University to deliver a series of botanical lectures. While there, he discussed several possible cooperative projects with the faculty members of the University, and our current study of the mosses of Israel has grown from this 1975 trip.

During his stay in Israel, Dr. Raven collected a few mosses himself, and among these is an interesting species called *Gigaspermum repens.* When I was studying his collections, together with Dr. Herrnstadt in 1977, I was startled to find the species among them, because at that time it was only known from several areas in the Southern Hemisphere and from Morocco and Spain, in the eastern Mediterranean area. *Gigaspermum* is a minute, inconspicuous

(Continued on Page 2)

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MOSSES . . .

(Continued from Page 1)

moss, and we were very surprised that he had collected it.

In 1978 I made a similar trip to Israel to collect mosses, and we searched in vain at Dr. Raven's original localities for *Gigaspermum*. Both localities are in rather dry areas — one just above the shores of the Dead Sea due east of Jerusalem and the other near the village of Mehola, in the Jordan Valley about halfway between the north end of the Dead Sea and the Sea of Galilee. We assumed in 1978 that we were unable to locate *Gigaspermum* because it had been a rather dry winter, and we thought that perhaps the moss simply was not growing at that time.

This year, we were able to relocate it at both the original localities, this time with the help of Dr. Avinoam Danin, who had accompanied Dr. Raven in 1975. He was able to direct us to the precise rock next to which it grows near the Dead Sea, and although we searched a large area around this rock, we were unable to discover additional colonies of the moss. It is truly remarkable that Dr. Raven should have stooped down and picked up this particular moss at that particular rock.

Once we knew the kind of habitat in which *Gigaspermum* was to be expected, we were able to locate a third station for it in the Golan Heights. This station is located near the north end of the Sea of Galilee above a steepsided gorge called Nahal Daliyyot, the same station at which *Antitrichia briedleriana* was found. The conditions reminded me somewhat of our Missouri cedar glades, that is, an outcropping of limestone rock partially covered by a very thin layer of soil. As I approached the area, I said to myself that certainly this interesting looking place must be the home of something more than the common mosses we had been collecting earlier in the day. Soon after getting down on my hands and knees to search among the tufts of grass for mosses, I spotted many large patches of *Gigaspermum*. Since it had rained the previous day, the mosses were particularly wet, shiny and beautiful.

While we had had difficulty distinguishing *Gigaspermum* from some of the other common mosses when they were dry, once we had seen the mosses wet, it became easy to distinguish *Gigaspermum* even at a distance of three or four feet, because it had a particularly attractive silvery green sheen to it. After collecting a reasonable amount of material for preservation at our own institutional herbaria and at other important botanical institutions around the world, we began searching for other kinds of mosses at the same spot.

(Continued on next page)

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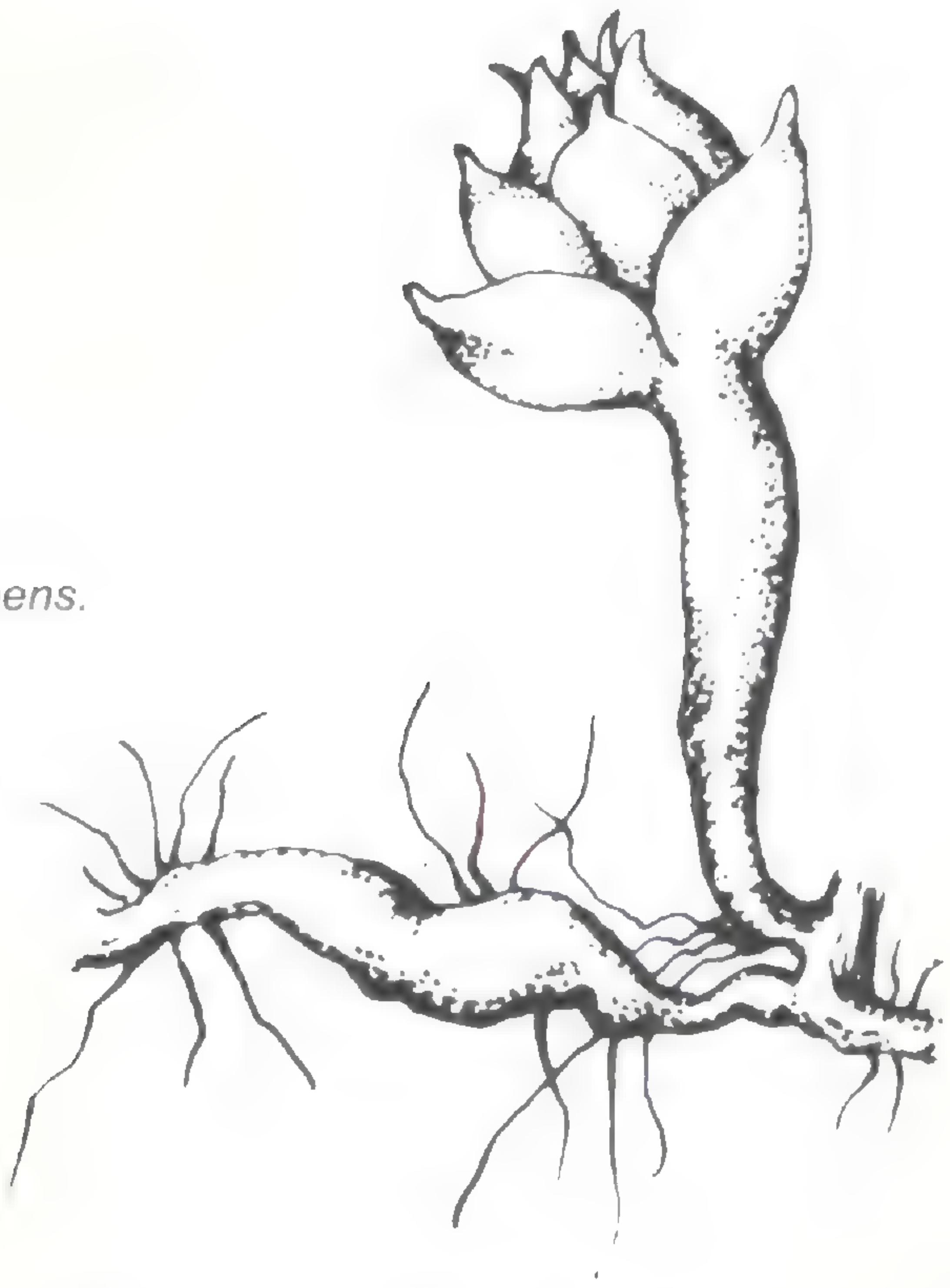
Confering on the Israeli moss study during a recent Garden visit are, from left, Dr. Marshall Crosby; Eliyahu Honig, director of information and public affairs at Hebrew University, Israel; and David Koren of the Midwest Region Division, American Friends of the Hebrew University.



Gigaspermum repens.

Our searches were soon rewarded by the discovery of the presence of a small moss with a big name — *Pyramidula tetragona.* While the material was not quite mature, I recognized this species almost immediately because of the peculiar pyramid-shaped covering on the capsule. Although I do not recall ever having studied specimens of this species before, it is so distinctive that I had no hesitation in identifying it on the spot.

The discovery of *Pyramidula* was totally unexpected, since this species was previously known only from Central Europe and the central part of the United States, including western Missouri. Since our collections were so far out of the known range of *Pyramidula,* we thought that it perhaps might represent a new species. However, on my way back from Israel, I stopped for about a week for some botanical meetings in the Netherlands, and I was able to compare our collections with collections deposited in the Rijksherbarium, Leiden. Although our specimens have larger than usual leaves, clearly they belong to *Pyramidula tetragona.*

The addition of *Antitrichia, Gigaspermum,* and *Pyramidula* to the list of mosses known from Israel serves to emphasize the fact of the relative richness of the moss flora there. We do not yet know why there are so many kinds of mosses there. Probably it has to do with the great diversity of habitats reflected in different altitudes, climatic zones, soil types, and vegetation types which occur there, together with the strategic location of Israel at the meeting grounds of the great, diverse floras of Europe, Asia, and Africa.

This spring's field work in Israel was exciting and successful, and before leaving, plans were made for my final visit to Israel in 1981. At that time we hope to have most of our thousands of collections labeled, sorted and identified and to be well on the way to producing a written flora of the mosses of Israel.

Since I arrived in Israel at the beginning of President Carter's successful peace mission, it was fitting that I left on the 26th of March, the day the peace treaty with Egypt was signed.

33 Enjoy Desert Wonders

The recent Garden trip to the Southwestern deserts was the first Members' desert trip and the first for the purpose of seeing and studying the desert environment. In all, 33 people enjoyed what was probably one of the most rigorous trips the Garden has ever sponsored.

The vegetation in two major Southwestern deserts was examined thoroughly during the many roadside stops which were included in the trip. In New Mexico, tour members saw the bright yellow mustard commonly called bladderpod *(Lesquerella gordoni)* covering many acres of ground in scintillating masses that contrasted vividly with the dark olive green of the ubiquitous creosote bush *(Larrea divaricata).* In Arizona, there were bright patches of the orange-gold poppies *(Eschscholtzia mexicana),* colorful expanses of lupines *(Lupinus sparsiflorus)* and the spectacular raspberry lavender-colored owl clover *(Orthocarpus purpurescens).*

As a result of the single occurrence of rain, tour members experienced the olfactory sensation of the creosote bush, which fills the air with a not unpleasant odor during each period of rainfall. The Spanish name for this shrub means "little smeller."

Another feature of the trip was the passage over two high mountain ranges. This provided a good opportunity to witness the changes in vegetation with increasing altitude. In yet another climbing experience, part of the group scrambled over large boulders to see specimens of the rare elephant tree *(Bursera microphylla).*

SENSE OF WONDER – Aaron Hughes of St. Louis, three years old, experiences an obvious sense of wonder during a recent workshop experiment.

Desert visitors trek the sands of the Southeast during recent Garden-sponsored field trip.

Other stops included the Arizona-Sonora Desert Museum, Carlsbad Caverns, National Monuments set aside for White Sands in New Mexico, and the saguaro and organpipe cacti in Arizona. The place that drew the most enthusiastic group response was the Boyce Thompson Southwestern Arboretum east of Phoenix. This place has an incredibly beautiful natural setting and the arboretum staff provided an excellent treatment.

—Ken Peck

Display Guides At Library

As a service to garden Members who express interest in current garden displays and are seeking more information, the Garden Library has compiled a list of relevant books. The first of these lists is appropriate to the upcoming Japanese Garden Day on May 20 and includes:

Condor, Josiah. *Landscape Gardening in Japan.* New York: Dover Pub. Inc., 1964. SB477.J2C6

Fukuda, Kazuhiko. *Japanese Stone Gardens, How to Make and Enjoy Them.* Rutland, Vt.: Charles E. Tuttle Co., 1970. SB458.F84.

Hayakawa, Masao. *The Garden Art of Japan.* New York: Weatherhill, 1973. SB458.H3813

Itoh, Teiji. *Space and Illusion in the Japanese Garden.* New York: Weatherhill, 1973. SB458.I8713

Kuck, Loraine. *The World of the Japanese Garden From Chinese Origins to Modern Landscape Art.* New York: Walker/Weatherhill, 1968. SB466.J3K82

If Members desire additional information on Japanese Gardens and related subjects, they are welcome to consult the library's card catalog.

—Vera Maeser
Garden Library

Frits Went: Reflections Of The Garden Past

Frits Went, Garden director from 1958 to 1963, visited the Garden recently for the first time in more than 15 years. The visit provided an appropriate point of reflection on the Garden's most dramatic display element — the Climatron.

One of Dr. Went's long-time areas of interest and expertise was the idea of closely controlled environmental conditions for plant growth. Before coming to the Garden, he built a series of controlled environmental chambers called phytotrons, a series of rooms in which temperature, humidity and light could be regulated closely.

When Dr. Went came to the Garden in 1958, one of his leading ideas was to construct the Climatron. Adapting the R. Buckminster Fuller concept concerning geodesic domes, he formulated a plan for a very large dome in which a range of temperature and humidity gradients could be incorporated. The basic idea was to emulate jungle conditions, and grow plants not normally grown in conservatories. That idea became the Climatron.

On his recent visit here, Dr. Went reflected upon the successes and shortcomings of the Climatron. Though this tropical greenhouse was completed during his tenure in 1959, the growth of many plants was unpredictable.

Dr. Went reflected upon changes in the Climatron and challenges that faced him at the time. Seated at the round table in the rare book room of the library, he explained his ideas using the table as a model.

The principle of the various temperature gradients was that it was more economical to have fluctuating temperatures rather than to maintain a constant temperature. Accordingly, the Climatron has five groups of four fans each of which move 20 tons of air per minute from west to east. A second system used during the winter season causes heated air to be exhausted from the southern perimeter and distributed both east and west. The fans are controlled by a thermostat. Dr. Went carefully programmed these fans and their capacity for air movement.

In concept, cool air is drawn in from the north, warmed again and recycled to the south. Ideally there would be four areas: cool days, cool nights; cool days, warm nights; warm days, warm nights; warm days, cool nights.

Many trees planted in Dr. Went's time are now gone, a necessity because they were intended to grow quickly and attain some immediate size. As some plants have grown, other plants have been removed. Dr. Went seemed pleased with the maturing growth in the Climatron.

Dr. Went was delighted and amazed with all the new developments such as the Japanese and English Woodland Gardens. He felt the Garden is just the right size to be toured by a visitor and was pleased to see the entire 79 acres so well utilized.

Former Garden director Frits Went, right, and Dr. Charles Huckins, the Garden's chairman of Indoor Horticulture.

When questioned concerning the principal role of botanical gardens in the world today, Dr. Went answered without hesitation — education, adding that much of this should be done by demonstrations, i.e., what agriculture means, what research accomplishes. Dr. Went was pleased that such demonstrations are planned for the new Visitor Center.

"We need to see and demonstrate to the public how the scientist and his work fit into our daily world scene," he said.

Plant Shop Features Bonsai

As a special feature in connection with Japanese Garden Tour Day on May 20, the Plant Shop will offer bonsai for sale. Most of the specimens are small and all are intended to be grown indoors all year. Only a limited number will be offered, so come early to ensure a good choice.

Spring Things Within The Ga

The 1979 Spring Flower Show, held under canvas for the first time in more than a half century, provides oval reflections of wonderland by night, above, and by day, below.

en Wall

Mrs. Fred Williamson models a circa-1910 afternoon dress during a Victorian fashion show, held as part of the Spring Flower Show.

Mediterranean Plants: Something Different For Midwest Gardens

Among the many pleasures gardening provides is the successful cultivation of a new plant. The plants from Mediterranean regions fit this category because, although their native habitat is quite different from the climate of the Midwest, many can adapt to our environment.

Some are annuals; others are perennials. While some may be familiar, many are not commonly cultivated here. However, all should give great enjoyment to plant enthusiasts.

There is a small garden outside the Mediterranean House where some of these plants are displayed. The design is that of a rock garden, imitating the natural rock outcroppings of some Mediterranean areas. A dry wall garden displays low growing or cascading plants that survive with little moisture and confined root systems. In the spring, the garden comes alive with many bulbs, followed by perennials and summer blooming annuals.

The most important cultural requirement for Mediterranean plants is good drainage. Most cannot tolerate wet feet. The addition of leaf mold or peat moss improves drainage and a balanced fertilizer applied monthly during the growing season will keep the plants in good health. They also benefit from being mulched both summer and winter. The mulch controls weeds in summer, reduces soil temperature and decreases evaporation losses. In winter, the mulch prevents heaving of the plants and insulates against the cold.

There are many Mediterranean plants from which to choose for your garden, only a few of which are mentioned here.

Aethionema cordifolium, candytuft, is a low-growing rock garden or edging plant. This attractive plant has blue-green foliage with light pink flower heads that appear in May. To grow it at its best, a sunny position and well limed soil are necessary.

Another hardy perennial is *Alchemilla vulgaris,* lady's mantle. While the leaves of this plant are bold and kidney shaped, the spring blooming flower clusters are delicate and airy. This strong contrast gives the illusion of two different plants growing together. The yellowish-green flowers dry well and can be used in arrangements.

A very effective plant, when used in groups or in a wall, is *Alyssum saxatile.* The fluffy yellow flowers appear in spring and are a subtle contrast to the gray-green foliage. It, in particular, dislikes wet feet and does not tolerate snow cover very well. It is best planted in an elevated position or a raised bed. The special beauty of this plant makes it worth the extra effort.

Centranthus ruber, or valerian, is planted extensively in Europe but is not common here. It is easy to cultivate and tolerates light shade. This reliable plant has an ultimate height of three feet. Cutting back severely in the spring promotes strong, healthy stems capable of carrying the weight of clusters of fragrant rose-colored flowers.

A charming mat-forming plant from Italy is *Cerastium tomentosum.* The white woolly leaves stay on the plant all year and, in the spring, starry white flowers cover the plant. It can become invasive, but is easily controlled.

Another mat forming plant, *Herniaria glabra,* or rupturewort, is effective when grown between stepping stones or bricks. It is grown chiefly for its foliage as the flowers are not showy. Quick to cover, this prolific plant also tolerates light traffic. The foliage is evergreen and comes through the toughest of winters.

One of the taller plants in the garden is *Hesperis matronalis,* commonly called sweet rocket. The three foot flower spikes on each plant can vary in color from white to lilac, making it an unusual addition to the garden.

It would be hard to overlook one of the most charming garden plants, the soapwort, *Saponaria ocymoides.* Because it naturally cascades, it is useful in a dry wall. Dainty pink flowers cover the plant in early spring. Easily established, a large area can be covered in one season.

Petrorhagia illyrica, known as tunica, comes from southern Italy. The grey-green foliage is attractive when not in bloom and the tiny pink flowers are a delight. It becomes a mound of foliage in a very short time and is perfect for a dry wall garden.

A number of perennials incapable of surviving our winters can be grown as annuals in our climate. They will flower and fruit in one growing season and in some cases reseed themselves. These seedlings may survive the winter in protected positions or under a heavy mulch. Several of these plants are known as everlastings, which means the flowers can be dried and used for bouquets. The flowers have papery-looking petal-like bracts even when they are fresh.

The strawflower, *Helichrysum bracteatum,* prospers in St. Louis. The wide range of flower colors are clear and bright. They are easy to preserve by picking the flowers before they fully open. The stem is removed and florist's wire attached to the base of the flower. It is then hung upside down until dry.

A short-petaled daisy would be the best way to describe *Ammobium alatum,* called winged everlasting. Although the leaves are low-growing, the flower stems are quite tall. They have a tendency to flop over unless grown close together.

Another everlasting that does well is *Limonium sinuatum* or statice. The foliage forms low-growing rosettes while the flower stems rise high above the leaves. They are excellent as cut flowers and come in

many colors. Close planting gives the best effect.

A familiar annual that comes from southern Europe is *Lobularia maritima,* probably known to most as sweet alyssum. This fragrant plant is a natural for the rock garden because of its cascading form.

A reliable cultivar with white flowers is new carpet of snow, but there are also pink, purple and lavender variants. Naturally mat-forming, it should be planted in front of the border.

The California poppy, *Eschscholzia californica,* cannot be surpassed for a dazzling display of clear golden flowers. The foliage is grey-green and feathery. It does not transplant easily and takes a long time to establish itself. The seed germinates readily and is best sown where it is to grow. The soil should be well prepared and kept moist through germination and seedling stages. The flowers are daisy-like and come in vibrant shades. This plant needs well-drained soil and to perform at its best, a sunny position. By the end of the summer, each plant has developed into a mound of foliage with many blooms.

These are only a few of the many Mediterranean plants that can thrive in our St. Louis climate. Please accept an invitation to come and see these and others growing in their newly developed area by the Mediterranean House. Here the plants will represent to some people countries that they may never have the opportunity to visit, while to others, the plants will serve as very special reminders of distant homelands.

—June Hutson, Horticulturist
Indoor Horticulture

Mediterranean House, site of a small outside garden displaying unusual but highly adaptable Mediterranean plants.

Climatron Shelters Endangered Species *Torreya taxifolia*

Growing happily in the Climatron since it was received in 1972 is a plant named *Torreya taxifolia.*

This interesting evergreen is now all but extinct in North America, a result of the fact that the plant grew in only a limited area. It occurred along the bluffs and ravine slopes of the east side of the Apalachicola River in Liberty and Gadsden counties, Florida; in an area close to the Georgia border in Seminole County; and in a region west of the Apalachicola River in Jackson County, Florida.

So what has threatened these interesting trees? Apparently a fungal disease is the culprit. Since the trees occur in such limited geographic areas such an attack could quickly wipe out these populations.

Botanists feel that this relict Florida torreya is extinct in its native habitat. The only specimens that survive are a few under cultivation, such as the one at the Garden growing in the Climatron.

This specimen was collected in the wild and sent to Ken Peck by Fred Galle of Calloway Gardens, Georgia, in September of 1972. It was grown from a cutting, planted on the lower level in the Climatron where it grows today.

Except for such specimens, it would no longer be possible to see *Torreya taxifolia.*

Gardening in St. Louis

Spring should be in full swing by now, although we've had our share of ups and downs in the weather picture. After the early flowering shrubs have bloomed, they should be pruned. Cut back for shape, removing some of the older stems. Blossoms will come from this year's new growth so pruning will encourage that growth and better flowering next season. A light pruning can follow in June. Winter damaged shrubs should be cut back to good wood.

An application of a balanced fertilizer is also recommended following pruning. Then replace mulch which will keep down weeds and help in retaining moisture.

Rose Care

Check rose bushes regularly for insect and disease problems. When spraying or dusting, be certain to cover the underside of the leaves as well as the top. Spray again after heavy rains.

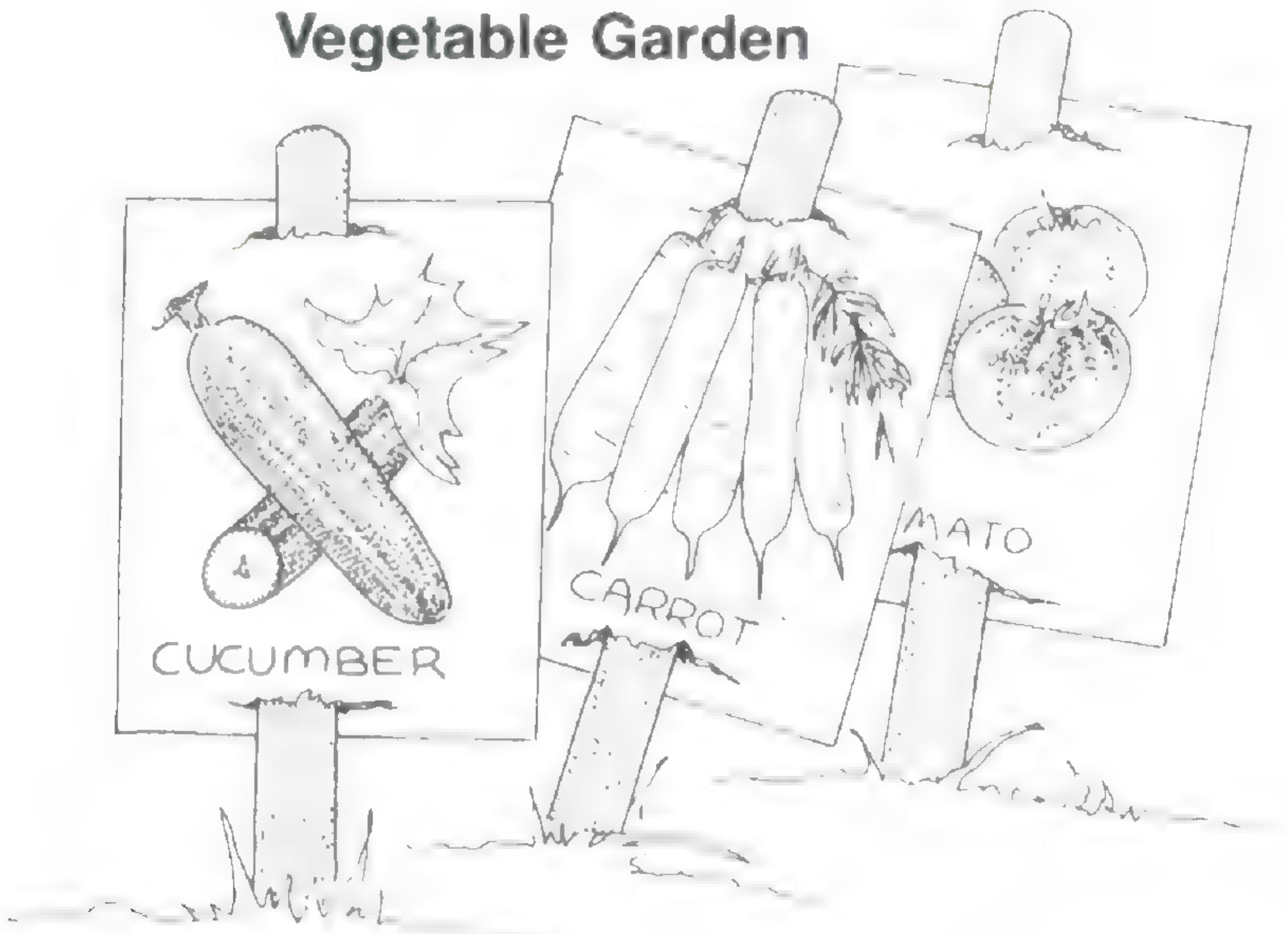
If fertilizer has not been applied before, early this month is the time to do it. This will encourage flowering. Since this is the "Year of the Rose", there is certain to be special offerings at your local nursery or garden center plus lots of good information on rose care. Be certain to check it out.

Bulb Care

Early flowering bulbs should receive a good balanced fertilizer. This will build up the bulbs for blooming next year. Mark the areas in which they are planted so that when interplanting with annuals, you will know their locations.

After the leaves have been allowed to mature for three weeks after flowering, they can be removed. If you wish to move the bulbs to another location, dig up after flowering and heal into the ground in an area of the garden out of sight. Allow foliage to completely die back. Remove foliage, clean bulbs and store in a cool, dry, well-ventilated area until planting time next fall.

Vegetable Garden



Progress should be evident in your vegetable garden. Warm weather plants such as tomatoes can be planted after May 10th. Seeds of such crops can be planted immediately. Remember to select the disease-resistant varieties.

Mulch the vegetable garden as soon as possible. That will make the garden accessible even in the wettest weather, will keep weeds down and retain moisture. Add more mulch as the season progresses.

House Plants

Indoor plants can be moved outside after hardening them off gradually. Place in a protected spot for a few days before moving them to their permanent summer positions.

The pots can be sunk into the border, placed in a semi-shaded area. Check for insects and disease and don't forget to water since pots dry out quickly on warm days.

Now is the time to plant tubs, containers and hanging baskets. For extra color, try pots of seed geraniums which will bloom all summer. Petunias will cascade from hanging baskets and provide instant spots of color. A large tub with several kinds of herbs will provide the kitchen with fresh herbs. There are several varieties of tomatoes developed especially for container culture if you don't have space for a vegetable garden or just want a few plants.

Annuals in containers provide portable color. If you're entertaining for a backyard barbeque, you can move containers to create the desired effect for the evening. Use your imagination to create new combinations.

—Barbara B. Pesch

Glade/Cave Trip Set For Arboretum

A glade and cave study trip will be sponsored by the Shaw Arboretum on June 2 and 3. The trip is similar in spirit and format to the successful prairie, St. Francois Mountains and Mingo Swamp trips organized previously by the Arboretum.

The Ozark Underground Laboratory, a private research and educational facility, will be toured with the director of the Laboratory. Participants will walk several miles, but no strenuous climbing is involved.

The Sunday tour schedule includes a visit to Hercules Glades, a 20-square-mile area dotted with hundreds of limestone glades. This area was recently designated a National Wilderness Area.

Jon Hawker, Associate Professor of Biology at Meramec Community College, will be guest naturalist, and Bob Rundquist of the Arboretum staff, tour organizer.

Fee includes motel, transportation by bus and all meals except Saturday dinner. Garden Members: $45.00/person (double occupancy); $50.00 (single). Nonmembers: $51.00 (double); $56.00 (single).

For registration and further information, please call 772-7600, extension 81.

Tours For Members

Cariboos By 'Copter'

"Canadian Cariboos by 'Copter" is a nine-day tour "experience" that promises to cram more high mountain sightseeing and more excitement and pleasure in it than any summer vacation ever planned.

The ride from Calgary to the storybook village of Banff, the majestic setting of Chateau Lake Louise, the Athabasca Glacier, your stay at luxurious Jasper Park Lodge — all are part of the build-up to the *piéce de rèsistance,* the Cariboo experience.

The Cariboo range consists of a remote group of mountains in the Canadian Rockies that is virtually unreachable by any means of transport other than helicopter. Until last year these beautiful, unspoiled peaks and valleys were the exclusive province of skiing afficionados. The base of operations is the Cariboo Lodge, a hand-crafted work of art that is more than adequate for 40 guests.

From here tour members will be taken by a jet-powered helicopter to the summit of one of the most awe-inspiring mountain peaks in North America. Tour members will disembark on virgin terrain (accompanied by an experienced mountain guide) where the only sounds are the sounds of nature. Unlike other mountain activities that require physical conditioning and ability, helicopter mountain trekking is for persons of virtually all ages. Participation can be as active or passive as desired, provided the tour member can board and exit the aircraft via two 20" steps.

For further information, please call the Members' Office at 772-7600, extension 25.

* * *

Winterthur

Winterthur, a four-day trip highlighted by a private tour of the DuPont estate, will be sponsored by the Tower Grove House Historical Committee.

Winterthur contains a unique collection of American furniture, silver and art objects that date from 1640 to 1840. In addition, the tour will include houses in Germantown, Fairmount Park in Philadelphia and "Andalusia" in Bucks County.

The trip is scheduled for September 14-16. Please call Mrs. Jane Coultas, 773-9000, for further information.

* * *

The Emerald Isle

The Garden invites its Members to sign up for an eight-day Ireland Castle and Garden Tour, September 20 through September 28, 1979. Call the Members' Office, 772-7600, extension 25, for additional information.

Plant Society To Be Formed

There is a new society in the formative stages for anyone interested in Missouri's native flora. An organizational meeting will be held in mid-May which will be open to all who think they might like to participate.

For further details, please contact Rick Daley at the Garden, 772-7600, or Jim Wilson, Missouri Department of Conservation, 314/751-4115.

Rose Evening

Schedule a Rose Evening at the Garden and enjoy these flowers in all their splendor on Friday, June 1, from 5 to 7:30 p.m. Sponsors for the evening will be Chrysler/Plymouth South. This special evening is for Members and their guests.

Calendar of Events

May 6	Wildflower Workshop 2-4 p.m. English Woodland Garden
May 13	Mother's Day 9 a.m.-6 p.m. "Wednesday Jazz Lab Band"
May 19-20	St. Louis Horticultural Society Show 2-5 p.m. Saturday 9 a.m.-5 p.m. Sunday John S. Lehmann Building
May 20	Japanese Garden Tour Day Free public tours 1, 2 and 3 p.m. from Visitor's Entrance

MEMBERSHIP — MAY 1979

INCREASE IN MEMBERSHIPS — MARCH 1979

SPONSORING

Mrs. Hilda Voss

SUSTAINING

Mr. Robert F. Brown
Dr./Mrs. David M. Kipnis
Mr./Mrs. F. H. Piepmeier
Mr. Raymond J. Siebert

CONTRIBUTING

Mrs. William S. Bedal
Mr. Anthony M. Bommarito
Mr./Mrs. Sidney N. Brilliant
Mr. David M. Culver
Mr./Mrs. H. D. Day
Mr./Mrs. W. Ashley Gray, Jr.
Mr./Mrs. James H. Grove
Dr. Earl S. Hallinger
Miss Ann Hubel
Mr./Mrs. Floyd F. Lewis
Mr. Hugh S. Mosher
Miss Wilma Mueller
Miss Margaret Nettleship
Mr./Mrs. Edward L. O'Neill
Mrs. M. E. Robinson
Mrs. Roy Schoeing
Mr. C. T. Wilson
Mr./Mrs. Robert A. Wolk

NEW MEMBERSHIP — MARCH 1979

REGULAR

Mr./Mrs. William Milton Bahr
Mr./Mrs. S. Eric Baldini

Member of
The Arts and Education
Fund of Greater St. Louis

Mr./Mrs. L. T. Baldwin, Jr.
Mr. Herbert B. Battles
Mr./Mrs. Bellinger
Mr./Mrs. Arthur H. Bender
Mr./Mrs. E. Berkey
Mr./Mrs. Alan S. Bestall
Mr./Mrs. Kenneth A. Black
Mr./Mrs. Andrew A. Blanchard
Miss Sandra Brown
Mr./Mrs. John J. Buritsch
Ms. Maria Caras
Rev./Mrs. Wayne H. Carlson
Mr. William F. Cassano
Mr. E. G. Chaves
Mr./Mrs. John R. Ciecko
Mr. Charles A. Clagg
Mr./Mrs. Lloyd F. Clay
Mr./Mrs. Robert Comerford
Ms. Sandra Copple
Mr./Mrs. Richard D. Crowell
Mr. Bertram B. Culver III
Ms. Sharon R. Dashall
Mrs. Bette DeBernard
Mr. Bowen Delevett
Mr./Mrs. J. Allen F. Delevett, Jr.
Mr./Mrs. Wallene R. Derby
Mrs. Richard Diemer
Mr. Marion Dorffi
Mr./Mrs. Russell Eggemeyer
Mr./Mrs. Dale W. Ehlers
Mr./Mrs. Albert Fitzgerald
Mr./Mrs. Ray H. Freeark
Miss Betty Fuchs
Mr./Mrs. Charles H. Garrison
Ms. Joan Greenberg
Mr. William F. Grey
Mr. Galen Gritts
Mr./Mrs. Robert Groenaman
Mr. Robert C. Haegg
Mr./Mrs. Edward Heine
Mr./Mrs. Robert J. Herleth
Mrs. B. L. Hewitt
Mr./Mrs. Mark B. Hillis
Mr./Mrs. Gerald C. Hurt
Mr./Mrs. Keith Isenberg
Dr. Ann Johanson
Mr. Aaron Jonan
Mr./Mrs. Paul Korklan
Mr./Mrs. Ben E. Kowing
Ms. Mildred Lammi
Mr. Harvey Leavitt
Mr. Louis L. Link
Mr. Ray Litzau
Mrs. Carola Margraf
Mr./Mrs. Jay Marsden
Dr./Mrs. S. Mauch, Jr.
Ms. Vonnie Maynard
Mrs. Mildred B. Mazanec
Mr./Mrs. Geoffrey P. McHugh
Mrs. Oliver McKee
Rev. David & Martha Mehl
Mr./Mrs. Norman G. Messinger
Miss Wilma M. Metzger
Mr./Mrs. Stanley Miedich
Ms. Lucy Miller
Mr./Mrs. George Mills
Mr. Michael Mitchell
Ms. Susan Murray
Mr. Michael J. Nichols
Ms. Beverly F. Notch
Mr./Mrs. Clifford Owens
Ms. Sheryl Palan
Mr./Mrs. John C. Palecek
Mrs. Sydell Pollack
Dr./Mrs. Heschel J. Raska
Ms. Donna M. Reinneck
Mr./Mrs. Glenn C. Rennaux
Mr. H. Wayne Renz
Mr./Mrs. Daniel E. Richardson
Mr./Mrs. Frederick D. Roberts
Ms. Jacelyn M. Robey
Ms. Deborah M. Rogers
Mr./Mrs. J. Stephen Rudolph
Mr./Mrs. Stanley E. Rupe
Ms. Gisele Sarosy
Mr./Mrs. Philip J. Schmitt
Miss Rose Marie Schoenhoefer
Mr./Mrs. Patrick E. Schooling
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Mr./Mrs. Melvin T. Shoptaw
Mr./Mrs. Peter L. Siebert
Mr./Mrs. Charles Sincox
Mr./Mrs. Thomas A. Skokut
Mr./Mrs. Arthur G. Smith
Mr./Mrs. George D. Smith
Mr./Mrs. Lyle C. Smith
Mr. William J. Snyder
Mr./Mrs. Orville Spreen
Mrs. Florence L. Stein
Mr. Alan T. Stentz
Dr./Mrs. Gregory Storch
Mr./Mrs. Thomas C. Sullivan
Mr./Mrs. David Themes
Mr./Mrs. Richard E. Thorson
Mr./Mrs. Walter Thulin
Mr./Mrs. Tommy Tolbert
Ms. Judith Versen
Mr./Mrs. George K. Vogt
Ms. Geraldine Waldrop
Mr./Mrs. Donald R. Washington
Mr./Mrs. George C. Weis
Mr./Mrs. Kenneth Westphal
Miss Ann Zotos
Mr./Mrs. Albert W. Zub

MARCH TRIBUTES

In Honor of Mr. and Mrs. Manne Coppersmiths' Special Anniversary
Joe and Ruth Pollak

In Honor of Mrs. Alice Pettersson
Mr./Mrs. H. A. Edwall

In Honor of Mrs. Elmore M. Putney's Very Special Birthday
Meade and Josephine Summers

In Honor of Mrs. William Schield's Birthday
Mrs. Landon Y. Jones

In Honor of Mr. and Mrs. Jos. H. Schweich, Jr.'s 45th Wedding Anniversary
Jewel and Harold

In Honor of Tower Grove House
Mrs. Wm. J. Pfeiffer and Family

In Honor of Al and Arline Wunderlick's 45th Wedding Anniversary
Mr./Mrs. Ellis C. Littman

In Memory of Mrs. William S. Anheuser
Dorothy Becker
Mrs. Ralph F. Piper

In Memory of John Gamble Burton
Stuart M. Mertz

In Memory of Mr. Donald W. Bush, Sr.
Mr./Mrs. Wm. R. Victor

In Memory of Dr. C. Gene D'Oench
Alexander and Elizabeth Bakewell
Mr. and Mrs. C. Calvin Christy

In Memory of Mrs. Robert Elliott
Mr./Mrs. M. Alexander Jones

In Memory of Mr. and Mrs. Arthur Fernleaf
Allan and Marjorie Booth

In Memory of Mrs. Lena Fitzpatrick
Peggy and LeRoy Erickson

In Memory of Francis Griesedieck
St. Louis Horticultural Society

In Memory of Mr. John Hayward
Mr./Mrs. J. H. Bascom
Mr./Mrs. Sam'l C. Davis
Mr./Mrs. C. Powell Whitehead

In Memory of Florence Brooks Hickok
Mrs. Paul Bakewell, Jr.

In Memory of Mrs. Daisy B. Jacobs
St. Louis County Health Dept. Employees

In Memory of Claude Johnston
Mrs. Dwight W. Coultas

In Memory of Ed Keefe
Tom and Marie

In Memory of Mrs. Paul Kohl
Miss Virginia Rosenmeyer

In Memory of Ella Pavelka
Mr./Mrs. Elmer L. Boehm
Evelyn Leopold
Town and Country Garden Club

In Memory of Mr. and Mrs. Ed. R. Roesler
Mildred W. Ryan

In Memory of Carl H. Schlopp
Mr./Mrs. Dustin H. Griffin
Mrs. Henry C. Reiner

In Memory of George Drake Scott
Alexander and Elizabeth Bakewell

In Memory of Father Byron Simon
Lester and Jody Rosenblatt

In Memory of Mrs. Beulah S. Smith
Mr./Mrs. James N. Bradley
Mr./Mrs. C. A. Courtney
Mrs. Fred Curry
Mr./Mrs. Robert Doddridge, Jr.
Harold Goodman
Mrs. Lee P. Hatfield, Jr.
Jack H. Hipps
J. M. S. Trucking Co.
J. R. R. W. Transport
Emil A. Kietzmann
Marceline and Ralph
Mrs. C. C. McGennis
Milac Sales Co.
Virginia S. Perkins
Mr./Mrs. Ralph A. Peterson
Mrs. Janice Pope
James S. Roth
E. N. Sanford
Noble V. Smith
Mr. J. M. Swank
J. M. Swank Co.
Wayne Toothman
Rowland Turner
Mrs. Elizabeth Wadlow
Wallace and Betty Williams

In Memory of Mrs. Elizabeth Thake
Mr./Mrs. Sam'l C. Davis
Mr./Mrs. Frank Kroll
Miss Beatrice Thake
Mr./Mrs. Emil O. Thoma
Mrs. H. P. Saussele, Sr.

In Memory of Mrs. Margaret Waturston
Mrs. Jos. H. Harper

MISSOURI BOTANICAL GARDEN BULLETIN (USPS 354-860)
2345 Tower Grove Avenue
Saint Louis, Missouri 63110

SECOND CLASS
POSTAGE
PAID
AT ST. LOUIS, MO.

Missouri Botanical Garden Bulletin

June is rose month. For a "how-to" look; see Page 3.

The Pitzman Program: A 'Natural' For Summer

Summertime in St. Louis means carefree days to enjoy the warm sun, afternoons spent in the company of friends and a whole new variety of creative pastimes. One of these is the Pitzman Nature Program, which has been bringing out-of-door learning experiences to St. Louis youngsters for 23 years. This summer's activities at the Garden and the Shaw Arboretum range from planting a miniature garden of insect-eating plants to an overnight nature trek in the tradition of John Muir. Programs for youngsters aged four through 16 begin in mid-June and continue through July.

Look over the program, then call the Garden, 772-7600, extension 54, for more information and registration forms.

At Shaw Arboretum in Gray Summit

- **Sense of Wonder —**
  A natural awareness experience for children aged four through eight with their parents.
  Session I: June 11-15
  Session II: June 25-29
  Time: 9 a.m. to 1 p.m. Friday; 6 to 9 picnic supper.
- **Muir Trek —**
  A two-day, two-night, relaxed trek through the Arboretum focusing on the complexity and flow of nature. Ages 12 through 16.
  Session I: July 10-12
  Session II: July 24-26
  Time: 8 p.m. Tuesday to 5 p.m. Thursday

(Continued on Page 2)

Instructors and young participants gather around and get close to the earth during one of last year's Pitzman Nature Program sessions at the Shaw Arboretum. The development of natural awareness is one goal of the summer-long program.

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June 1979

PITZMAN PROGRAM *(Continued from Page 1)*

- **Natural Awareness —**
  Small groups will venture along the Meramec River, participate in personal "Magic Spots," and make natural crafts.
  Session I: July 17-21
  Session II: July 31-August 4
  Time: 8:30 a.m. to 3 p.m. Tuesday-Friday
  9 a.m. to 1 p.m. Saturday
- **Missouri Botanical Garden One Day Events —**
  Come any day or all three, 10 a.m. to 2 p.m. Ages eight through 16.
  1. *Fruits, Flowers and Seeds* — Flower arranging leads to a fruit treasure hunt, and the eventual sowing of seeds collected around the Garden. July 2 or July 17.
  2. *A Trip to Japan* — A time to get acquainted with the Japanese Garden and some of the nature-related arts of the Orient. July 3 or July 18.
  3. *Miniature Landscapes* — A day of observing micro-environments ends in planting two mini-gardens to take home. July 5 or July 19.
- **Japanese Summer —**
  A special week for participating in and learning about the Japanese Garden and the culture that created it. Ages 10 through 12. July 9-13.
- **Green Machine —**
  Five days of exploring plant life around the world as it can be seen at the Garden; and everyone will pick up some gardening skills along the way. Ages eight through 16. July 23-27.

A 'Thank You' To Members

The staff of the Garden Plant Shop wishes to thank members for their tremendous support of the plant sale in April. Since this event was a "first", we have all learned a great deal. Next year's sale will be better because of the experience.

The special offering this month will be golden barrel cactus. Available in four-inch pots, this popular cactus is usually quite expensive. However, the small size of these specimens places the sale price in a reasonable range. Cactus lovers can add several to their collection.

Tower Grove House News

Final details are available for the September 13-16 Winterthur trip. Call 773-9000 for information.

* * *

Volunteers are needed for Tower Grove House Tea Room. Hours are 11 a.m. to 1 p.m. Tuesday and Thursday. Please call Mrs. Jane Coultas at 773-9000 for further details.

Ireland Tour Includes Touch Of Orient

Just prior to 1900, Col. William Hall-Walker purchased the land at Tully, Ireland, and came to reside at Tully House. By 1915 he had established Tully as a stud farm of international renown and the home of the Japanese gardens. The gardens were designed to portray symbolically the life of man from childhood to old age.

For those who may be contemplating taking the Garden's Ireland tour, the story of Col. Hall-Walker should hold some interest.

Col. Hall-Walker's decision to build the Japanese garden at Tully was no doubt the result of his interest in botany and the influence of his many trips to Japan. To design and supervise the construction of the gardens on a swampy site where the natural springs were ideal for adaptation, he sent for the Japanese landscape designer, Tassa Eida. Mr. Eida took residence at Curragh House where he undertook the task of constructing the gardens with the help of some 40 local men. Their task took four years before completion in 1910. Hundreds of tons of rock were transported by horse and cart from many miles away and carefully laid in place. Almost fully grown pine trees were transplanted from a local bogland to seemingly impossible positions on the rock in the gardens, where they stand today as witness to the Japanese mastery over plant life. A wishing well was sunk; waterfalls and pools of crystal-clear water were made; a Geisha house, sent in sections from Japan, was erected; stone images and works of art, trees and shrubs including many ancient Bonsai, came to find their home in an Irish setting.

In addition to this lovely Japanese garden, members of the Garden tour to Ireland, September 20 through September 28, will have the opportunity to visit and stroll within the other Irish gardens that have brought much pleasure to garden lovers from all over the world. Alan Godlewski, Chairman of the Landscape Horticulture Department, will be the Garden escort.

For further information, please call the Members' Office at 772-7600, extension 25.

The MISSOURI BOTANICAL GARDEN BULLETIN is published 12 issues per year monthly by the Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, Mo 63110. Second class postage paid at St. Louis, Mo. $5.00 per year. $6.00 foreign

Rose Culture: 'Tis The Season

The seemingly endless, chilling winters of St. Louis have one advantage: they give all rose gardeners a chance to catch their breath, relax and rid their bodies of those awful backaches and pains developed from the previous season—at least for a little while.

However, even more important, these spare moments give each gardener a perfect opportunity to plan and coordinate his efforts for the upcoming growing season. All of our winter tasks (i.e. mulching, pruning) are behind us now, and indeed, there is much for which to prepare: designing new beds, discovering new cultivars and outlining spraying schedules. By the time all these mental preparations have been accomplished, winter is usually just ending and soon our thoughts will become reality as we apply them outside in the rose garden.

Spellbinder, 1975 Rose of the Year, Pink/Ivory hybrid tea.

It should be stressed that timing and sequence of spring events is very important when considering spring rose culture. One of the most common questions asked during this busy season is what to do and when. Of course, by now your rose plants should be well on the way to their first flush of bloom, which usually occurs between May 25 and June 5.

However, for those who have neglected their garden until now, **please go prune!** This should be the first priority on your list and should be completed as soon as possible during early spring (March 20 to April 1). Just remove winter mulch and start cutting. There is an important reason for finishing this task early. New succulent growth arrives around mid to late April. By waiting until this growth appears, you take the chance of breaking the tender developing canes, thus delaying the maturation of the bush. Also, vision is severely impaired as the foliage ensues, and after April it is very difficult to see where and what you are pruning. So, good luck to those who haven't started yet!

Once pruning has been completed, the next task is feeding. Depending on the weather, the size of your rose garden and various other factors, feeding should begin around April 5-10 in the St. Louis area. Another common question is: which fertilizer do I use? Most gardeners use chemical fertilizers, compounded to provide all the nutrients the plants need, because they are very accessible. In general, the average rose gardener would do best using a slow releasing fertilizer. All points taken into consideration, it is the easiest, most efficient material to use for quality results. And, even though such products cost more per pound than most other conventional fertilizers (i.e. 5-10-5, 5-15-5), only one feeding per growing season is required, thus drastically trimming the time and labor spent.

Remember, during this busiest of seasons, every minute saved can be useful in some other aspect of rose culture. The methodology in the application of the fertilizer is largely a matter of convenience. Some methods are extremely sophisticated and require special equipment which most people cannot afford. However, all that is necessary is that the fertilizer be distributed uniformly. An efficient method that might be employed is to simply dig four holes evenly around every plant, each hole being approximately four inches deep. Divide the recommended amount of fertilizer into four parts, applying one part to each hole, and then fill in the holes. In addition to feeding, this also aerates the soil. Keep in mind that it is unwise to delay in planting new, bare-root roses. If you cannot plant them within a couple of days, protect them by heeling them in until you can do so.

No matter how carefully your roses have been planted and fertilized, the plants cannot produce blooms unless they have an adequate supply of moisture to keep them actively growing. This need will continue even after the plants are well established. Usually, water is the element in short supply rather than fertilizer, and unless moisture is present, the food cannot be assimilated by the plants. It is easy to see, for example, that the flush of bloom in both spring and fall coincides with the spring and fall rains, when there is adequate moisture in the soil. Therefore, a watering schedule should be incorporated as soon as feeding has been completed and continued throughout the growing season.

In addition to initiating a watering schedule, it is imperative that a spraying schedule also be introduced as leaves break out in late April. Regular attention with either sprays or dusts will keep healthy roses healthy. The key words to remember are 'regular attention.' You cannot wait until roses are covered with fungi or insects before inaugurating a program. Successful control of such pests is only beneficial if prevention is practiced.

—Glenn Williams
Rosarian

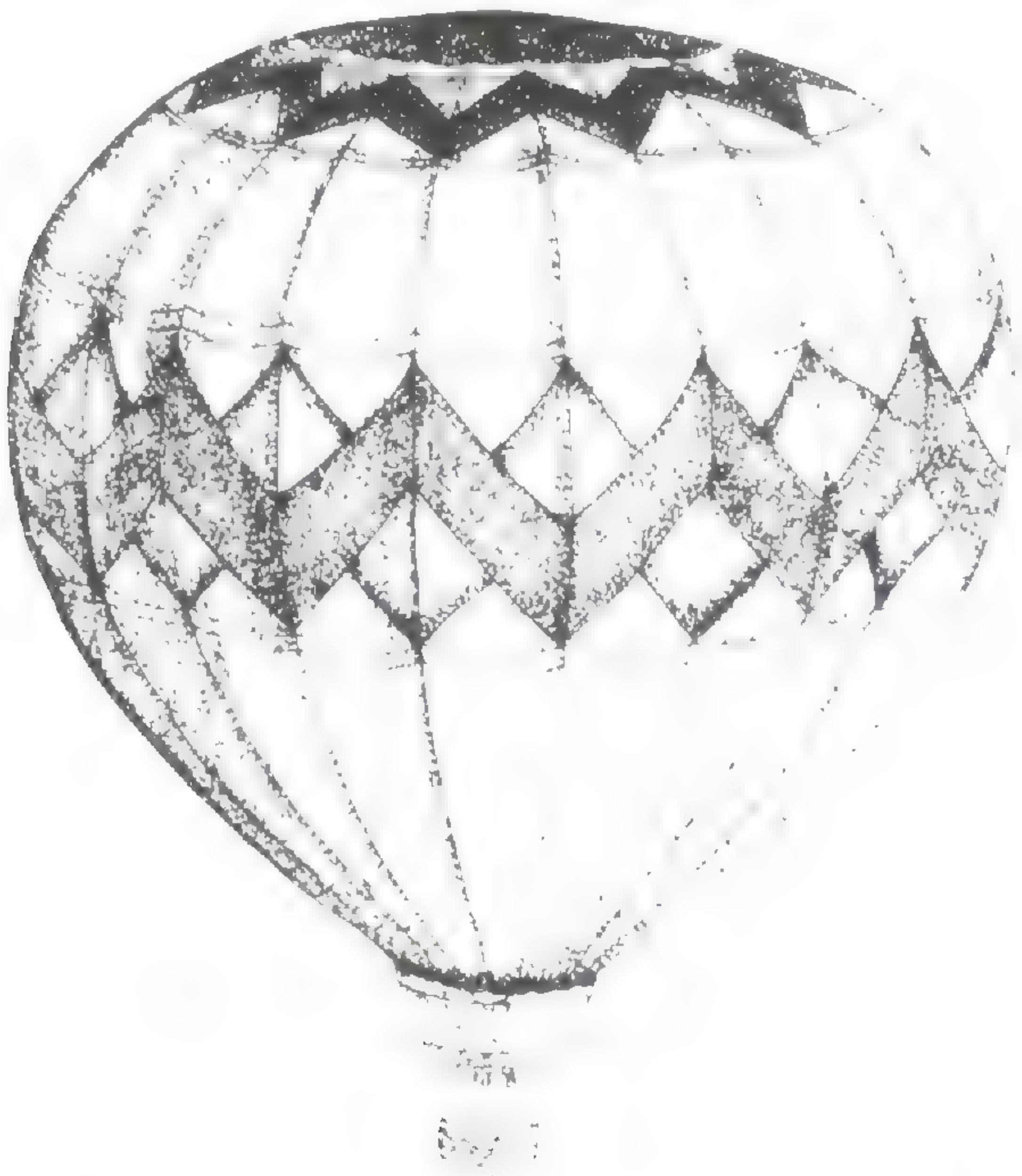
A Special Month For Special Events

June is the month that the roses bloom and the earth seems to produce everything in abundance. To celebrate these glorious days, a number of special events at the Garden have been planned. One special day is planned with children the focus of attention. There will be a wide range of entertainment from sailboat races in the lily ponds to children's theatre. Special tours of the Japanese Garden and Climatron will be scheduled throughout the day. Workshops will cover the transplanting of seedlings and artistic brush painting — both given by members of the Garden's education department.

The events will take place during regular Garden hours. A schedule of special events will be available at the gate.

To celebrate the regal rose, two evenings have been set aside — June 15 and 16 from 6 to 8 p.m. In addition to the rose gardens, the Climatron, Linnaean, Desert and Mediterranean Houses will be open. The sounds of light classical music will fill the air and refreshments will be available.

June 17 should be circled on your calendar if you have rose care problems or questions. A Garden rosarian will demonstrate rose care techniques and answer questions. Place: Anne L. Lehmann Rose Garden; time 2 to 4 p.m.



Celebrate the Summer Solstice, June 21, from 7 to 10 p.m. This evening gala will feature the Garden pathways by torch light, candlelight tours of Tower Grove House, carriage rides and tethered hot air balloon ascensions. Musical entertainment will be provided by a barber shop quartet and strolling musicians. Refreshments include complimentary hors d'oeuvres and wine for a small charge.

A family event will take place June 24 from 1 to 4 p.m. Bring the family to the Garden for entertainment and enjoy ice cream from Velvet Freeze. Bob Kramer's Marionettes will perform at 1:30 and 3 p.m.

Enjoy June even more by participating in one or more of the special events being offered this month.

Dr. Frans A. Stafleu, left, of Utrecht, the Netherlands, and Dr. Richard S. Cowan, Smithsonian Institution, have used the Garden library for taxonomic research in preparing their five-volume text, Taxonomic Literature. *Volume Two of the work, termed "TL2", will be published on June 11.*

'The Garden Party'

If you enjoyed the Picnic at the Garden last year, we have another special event planned — "The Garden Party" on Saturday, September 8, sponsored by Stix, Baer & Fuller. Entertainment will be presented throughout the Garden grounds during the cocktail hour, followed by a gourmet picnic supper served in the festively decorated tent. After dinner, guests will dance to the big band sounds of the Gateway City Big Band. Tickets are $60.00 per couple for Members and $75.00 per couple for non-Members. Proceeds from this benefit will go towards the purchase of the Garden's new tent, now being utilized to house the flower shows in the absence of the Floral Display House. For an evening to remember, circle September 8 on your calendar today.

Gate Shop Features Summer Selections

The Garden Gate Shop has new merchandise which will provide unique gifts for special friends as well as fresh additions for your own home.

New features include Kosta Boda china in the botanic garden and birds of Britain patterns. The china and cache pots make excellent gifts. A variety of tea is featured as well, with all the appurtenances needed — tea pots, cozies, strainers, cups.

The Complete Book of Gardening, edited by John Elsley, is available in the outstanding collection of gardening books at the Gate Shop. John will be on hand June 23 and 24; between 1 and 3 p.m., to autograph copies and answer questions. Prints of Trelease's delphinium are on sale at $10 each.

Don't forget that the Garden Gate Shop will gift wrap and mail purchases for a small fee. Stop in and see all the new selections.

Dr. Steere's Visit Emphasizes Library's Role

Dr. William Campbell Steere, right, president emeritus of the New York Botanical Garden, is greeted during a recent St. Louis visit by Dr. Paul Redfearn, author, professor of biology at Southwest Missouri State University and mayor of Springfield, Mo. The Garden library purchased Dr. Steere's outstanding personal library of works on mosses and liverworts in 1977.

On April 19, the Garden was privileged to host a visit from Dr. William Campbell Steere, president emeritus of the New York Botanical Garden, and Mrs. Steere. Dr. Steere was here to present a seminar to the Garden's research staff and graduate students on the distribution of bryophytes (mosses, liverworts, and their relatives) in the Canadian and Alaskan Arctic. During the visit, Dr. Steere also spent time examining the moss herbarium and touring the Garden's outstanding research library.

Dr. Steere's interest in the Garden library dates to December, 1977, when the Garden was fortunate enough to be able to purchase from Dr. Steere his outstanding personal library of works on mosses and liverworts. Included in Dr. Steere's library were nearly 1,000 bound volumes, some 6,000 individual papers and a large collection of periodicals on his specialty. Acquisition of the Steere Collection has given the Garden one of the finest research collections of bryological literature available anywhere in the country.

For the past several months, members of the library staff have been concentrating upon cataloging the books from the Steere Library, a project now 99 per cent complete. As part of the cataloging procedure, records for each book were entered into the OCLC data base, a national computerized cataloging network of some 1,800 research libraries. Any OCLC member library can now use the Garden's cataloging records to catalog its own collections, or to borrow materials from the Garden's library for use by its patrons. Support for this venture has come in part from the Sunnen Foundation and the U.S. Office of Education's Office of Libraries and Learning Resources.

Many of Dr. Steere's books were repaired, rebound or restored once cataloging of them was completed. The library's in-house bindery has provided the expertise to return these publications to proper physical condition. Financial assistance was provided by CAMELOT.

Brian Kennedy, probably the youngest library volunteer in Garden history, demonstrates use of the library's new OCLC data base terminal.

The Merry Month Of May,

NEW OFFICERS – Newly elected officers of the Executive Board of the Members are, from left, Mrs. Donald R. Steffan, secretary; Mrs. O. Alexander Kerckhoff, Jr., first vice president; Mrs. Willard L. Levy, treasurer; Mrs. Eugene N. Reese, second vice president; and Mrs. Robert H. Kittner, president.

EMPIRE LOOK – Mrs. John Matthews, a representative of the Daughters of the British Empire of Missouri, relaxes upon one of several new benches donated by the organization for the English Woodland Garden.

TOUR GUIDES TOUR – Dr. Peter H. Raven, right, Garden director, conducts members of the Garden Tour Guides on a tour of the English Woodland Garden.

arden-Style

ARBORETUM DAY for Members, held recently at the Shaw Arboretum, attracted a large crowd for a day-long program of education, picnicking and simple enjoyment of the outdoors.

Gardening in St. Louis

June is the month of the rose — queen of garden flowers — and if rose gardeners have done their homework, flowers should be in evidence everywhere. What roses demand, of course, is attention.

Keep up a regular spray program for your roses to control mildew and black spot. Heavy rains necessitate another spraying. Cultivate the soil around the base of the bushes lightly and apply fertilizer. Remove spent flowers, cutting back to the first five-parted leaf. Do not allow roses to go to seed.

Watering

Among the many tasks for the busy gardener this month is likely to be watering. When this task becomes necessary due to lack of rain, water well — equal to about two inches of rain. Place a can in the sprinkler path to check the amount of water. With a thorough watering, this task will not have to be repeated for 10 days to two weeks. Light, frequent sprinklings are more damaging than beneficial.

Early morning is a good time to water so that plants dry off before evening sets in. This is also a good time of day to spray for insect and disease control before temperatures get too high. Spraying can be done in the early evening if there is enough time for them to dry off before night sets in.

Annuals and Perennials

Annuals still can be planted in borders and beds for color. Keep in mind that it is delightful to have flowers to cut for the house. Many annuals and perennials make excellent flowers for cutting and for drying as well. Pinch annuals to keep bushy.

When planting seedlings, water well with a dilute fertilizer. Transplanting on a cloudy day will minimize the shock. Protect from full sun for a few days.

Chrysanthemums can be divided now. Pinch back to insure bushiness. Oriental poppies and bleeding hearts can also be transplanted now. Dig up roots, keeping them intact. Cut two-to three-inch sections and plant to a depth of an inch. New plants will flower next year.

Gladiolus can be planted at two week intervals into early July for extended flowering. Glads may need to be staked to prevent being knocked over by the wind. Other tall plants require staking as well.

Vegetable Garden

While you are enjoying the early fruits of your garden, plant now for yield later on. If you plant close to crops that are about to mature, you will make the best use of space. You can still plant tomatoes, cucumbers, beans and squash. Watch for insects and disease problems and institute a spraying program as soon as problems arise. Water as needed, remembering to water well. Keep adding mulch which will help conserve moisture.

House Plants

If house plants haven't been moved outside, they should be moved now. There is nothing more beneficial than a summer spent outside with good light and air circulation. Watch for insect and disease problems and treat before they become serious.

Keep up a program of feeding with a balanced fertilizer. Pinch back to control shape and encourage fullness. If plants are kept inside, keep out of drafts from air conditioners. Fertilize on a regular basis.

Lawn Care

Mowing should be done on a weekly basis. When watering, do it well, as indicated earlier. If weeds were not controlled last month, now is the time to apply weedkiller. Care should be taken that the spray does not drift to other cultivated plants. Do not use sprayer for other uses as it is almost impossible to remove all traces of the weedkiller. Don't cut the lawn for about three days after spraying.

June is such a lovely month. Take time out from all the gardening chores to enjoy this special month of the year.

—Barbara B. Pesch

Calendar of Events

June 4-29	Photography Exhibit 8:30 a.m.-5 p.m. Monday-Friday Lobby, John S. Lehmann Building
June 10	Children's Day 9 a.m.-6 p.m.
June 15, 16	Evening Rose Celebrations 6-8 p.m. Rose Gardens, Climatron, Linnaean, Desert and Mediterranean Houses
June 17	Rose Care Demonstration 2-4 p.m. Anne L. Lehmann Rose Garden
June 21	Summer Solstice Party 7-10 p.m.
June 24	Ice Cream Social 1-4 p.m.

ICP Exhibit Set For June 4-29

Botany and photography are the subject of the ICP exhibit set for the John S. Lehmann Building in June. Photo above, by Rev. Ilene Weber, was taken in the Garden last year.

During the month of June, an exhibit of nature photography will be on display in the lobby of the John S. Lehmann Building. Sponsored by the Image Center for Photography, a local non-profit corporation promoting increased awareness of photography, the exhibit will feature color and black and white images by local photographers.

Like previous Image Center exhibits in this area, this show assembles a wide variety of styles and techniques used by photographers today.

Few of the Image Center's members are professional photographers, but their work shows the thought, artistic vision and technical control of dedicated amateurs. Participants in this exhibit range from a salesman to a social worker, like Rev. Ilene Weber, whose image, shown here, was taken in the Garden last year.

The exhibit, scheduled to open on Monday, June 4 and close on Friday, June 29, will be on view between 8:30 a.m. and 5 p.m. weekdays.

In addition to exhibits of local and nationally-known photographers, the ICP presents monthly photographic lectures for the community as part of its program. Hoping to be a forum for the exchange of ideas and information on the art of photography, the ICP considers education a large part of its purpose.

Garden Week at West Port

West Port Plaza will feature the Garden in a special event set for June 25 through July 1, 1979.

The week will include free lecture/demonstrations by Garden staff members, Monday through Friday at 12:30 p.m. in the Plaza fountain area. There will be a plant sale featuring plants from the Plant Shop. Special coupons will be given to West Port Plaza customers which can be redeemed for Garden premiums. An answerman booth will be staffed by Answermen and John Elsley, Curator of Hardy Plants. The booth will be open daily from 11 a.m. to 3 p.m. to answer gardener's questions.

Rose Resources

As a service to Garden members interested in roses, and in conjunction with the Evening Rose Celebration, the Garden library has compiled a list of books relating to roses. This list includes:

Le Grice, Edward Burton, *Rose Growing Complete*. London: Faber, 1976. "H"SB411.L423 1976.

Seymour, Jacqueline, *Roses*. New York: Crescent Books, 1978. "H"SB411.S4 1978.

Hessayon, David Gerald and Harry Wheatcroft, *Be Your Own Rose Expert.* Waltham Croso Herto Eng.: Pan Britannica, 1972. "H"SB41.H47.

Edland, Henry, *The Pocket Encyclopedia of Roses in Colour.* London: Blandford Press, 1966. "H"SB411.E27 1966.

Fairbrother, Fred, *Roses*. London: G. Bles, 1970. "H"SB411.F35.

Park, Bertram, *The World of Roses.* New York: Dutton & Co., 1962. "H"SB411.P262 1962.

For further information please consult the library's card catalog.

WILDFLOWER WORKSHOP – John Elsley, center, curator of hardy plants, conducts a Wildflower Workshop in the English Woodland Garden.

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In Honor of Mr. Sidney Cohen
Sidney and Sadie Cohen Foundation

In Honor of Dr. William C. MacDonald
Mrs. Milton R. Israel

In Honor of Mr. John Masek
Paddock Hills Garden Club

In Honor of Paul Lee Taylor, born January 23, 1979
His Parents, Paul and Barbara Taylor

In Honor of The Tribute Fund
Jeanne M. Carnighan
Mrs. Robert V. E. Martin

In Memory of Dr. Robert Wilson Bartlett
Mr./Mrs. Alexander M. Cornwell, Jr.

In Memory of J. Russell Bircher, Jr.
Michael and Lois Weigert

In Memory of Minna Bliefernich, my mother
Elisabeth Malmros

In Memory of Elizabeth Bollman
Barbara Stribling

In Memory of Mrs. Don Bryan
Mrs. Jean-Jacques Carnal

In Memory of Margaret W. Cassens
Marjorie and Wil Kleypas

In Memory of Mr. and Mrs. Isaac Cohen
Sidney and Sadie Cohen Foundation

In Memory of Mrs. Sadie Cohen
Sidney and Sadie Cohen Foundation

In Memory of Gaetano Coco
Richard H. Coco

In Memory of Mrs. Catherine Darrah
Charles and Margaret Darrah

In Memory of Dolores M. Deters
Glen Deters

In Memory of Dr. C. Gene D'Oench
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Grace and Gupton Vogt

In Memory of Eugene H. Fleming
Anne A. Boettcher

In Memory of Henry Franke
Frank and Pat McFarland

In Memory of Mrs. M. Kay Friederich
Frederick and Gertrude Faust

In Memory of Eleanor Gordon
Margaret Allard
Mrs. Mary Lacombe
Mrs. Elsie Mabry

In Memory of Mrs. Dorothea Glynn
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In Memory of Dr. Philip Hamm
Betty and Clyde Wilson

In Memory of Louis Haren
Dr./Mrs. Joseph Kendis

In Memory of Mr. John H. Hayward
Mr./Mrs. B. B. Culver, Jr.
Eleanor and Henry Hitchcock

In Memory of Dorothy and Alex Hope
Rial and Doris Rolfe

In Memory of Robert Hovis
Gunnar, Ruth and Willi

In Memory of Mrs. Sterling Ivy
Mary E. Baer

In Memory of Mrs. William V. Johns
Mrs. Harry H. Hilliker
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In Memory of Dorothy Ladd Johnson
Mr./Mrs. Charles W. Freeman

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Mrs. Kenneth C. Baker
Dr./Mrs. Armand D. Fries
Dr./Mrs. John E. Hobbs
Mrs. G. F. Newhard
Mrs. Ralph F. Piper
Mr./Mrs. George W. Skinner

In Memory of Jean Loeffel, Dorinda her niece, and Bob her brother
Mary Gillette

In Memory of Mary Mabon
Alexander and Elizabeth Bakewell

In Memory of Mr. Michael McGriff
Iris Vogler

In Memory of William McKelvey, my father
Rosemary McKelvey

In Memory of Helen B. Meyer
Mr./Mrs. Raymond H. Graves, Jr.

In Memory of Mr. Roland Parker
Mr./Mrs. J. A. Baer, II

In Memory of Mr. and Mrs. George H. Pring
Mrs. Russell J. Seibert

In Memory of Charles A. Rosner
Frances Rosner

In Memory of Lee W.Sanders
Plaza Spires Group,
Centenary Methodist Church

In Memory of Sarah
Brentwood Garden Club

In Memory of Mr. Edward C. Simmons, II
Mr./Mrs. J. H. Bascom
Eleanor and Henry Hitchcock
Mrs. A. Wessel Shapleigh
Mr./Mrs. Ira Wight

In Memory of Beulah Swank Smith
Mrs. Ada H. Buxton
Mona C. Casteel
Mr./Mrs. R. C. Horning
Mr./Mrs. John E. Morris
Mrs. R. O. Powell

In Memory of Mr. and Mrs. J. G. Taylor Spink
Mr./Mrs. C. C. Johnson Spink

In Memory of Mrs. Steinman
Mr./Mrs. Calvin H. East

In Memory of Georgia D. Tancill
Mr./Mrs. Milton H. Johnson

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Florence Engleman
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In Memory of Viola Wagstaff
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Bess J. Corn

In Memory of Mrs. Lucille White
Mr./Mrs. Edwin R. Waldemer

In Memory of Richard N. Williams
Affton Garden Club
Mr./Mrs. Albert Dillow

In Memory of Kenneth D. Wilson, Jr.
Tim Brown
Don, Jacqueline, Valynda and Mark Messerly

In Memory of Our Parents
Mr./Mrs. Paul C. Wright

MISSOURI BOTANICAL GARDEN BULLETIN (USPS 354-860)
2345 Tower Grove Avenue
Saint Louis, Missouri 63110

SECOND CLASS
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AT ST. LOUIS, MO.

Missouri
Botanical
Garden
Bulletin

New Members: mother's little ducklings in the Japanese Garden pond.

The Chinese Connection: A Botanical Exchange

A delegation of eight distinguished Chinese botanists visited the Garden in late May. They were here to see the Garden's research facilities and to meet its staff.

It was an ideal opportunity for learning about botanical gardens in China. Dr. Sheng Ching-kui, Director of the Nanking Botanic Gardens, gave a talk on plant introduction and botanical gardens in China. While the history of plant introduction goes back thousands of years, botanical gardens were not organized there until about 50 years ago. There is now a network of more than 30 botanical gardens in China, with many in active development. The gardens have been established in different climatic and vegetational zones in order to cultivate and study a wide variety of Chinese and exotic plants.

Given the needs of today's Chinese society, the programs of the botanical gardens in China have had for the most part very practical goals. Dr. Sheng outlined major functions, ranging from the exploitation of wild plant resources to improving the overall quality of introduced plants. However, the molding of a pleasing landscape and popularization of botanical knowledge, among the most important goals of the Garden, were also listed.

From the Garden's point of view, the most interesting garden in China is the Nanking Botanical

(Continued on Page 2)

Chinese delegation members tour English Woodland Garden with Garden officials, from left, Dr. Marshall Crosby, Susan Y. Flowers, Wu Ching-yi, Dr. Charles Huckins, Yu Te-tsun, Su Feng-lin and Sheng Cheng-kui.

Volume LXVII Number 7
July 1979

CHINESE DELEGATION . . . *(Continued from Page 1)*

Wu Ching-yi, a member of the Chinese delegation, takes advantage of the opportunity for a botanical close-up.

Garden. In all of China that city has a climate almost exactly like that of St. Louis, therefore, it should be possible to obtain interesting plants from the Nanking area and grow them in St. Louis. Conversely, the Garden will send plants from the St. Louis area to Nanking for cultivation there.

Some of the most beautiful and interesting trees in the Garden are of Chinese origin. The large *Gingko* just west of the Administration Building and the symmetrical *Metasequoia* trees, introduced only 30 years ago, in front of the Lehmann Building, are examples. Certainly there are new horticultural treasures waiting to be introduced from China. Indeed, the Chinese delegation presented the Garden with seeds from Nanking and Peking for cultivation here. Most will be interesting additions to the Garden's living collections.

A trip to the Arboretum on the delegation's second day in St. Louis helped emphasize the similarity between the plants of China and the local flora. The Chinese knew many of the local plants by their Latin generic names, though often the species were unfamiliar. For example, *Penstemon,* Beard tongue, *Menispermum,* Moonseed, and *Podophyllum,* Mayapple, were all in flower at the Arboretum, and the Chinese immediately recognized them and called them by the Latin names. Each of these genera has representatives in China, though the species are different.

Included among the seeds which the Chinese gave to the Garden are Chinese species of other familiar North American genera. Seeds of *Gleditsia sinensis,* Chinese honey locust, *Fraximus sinensis,* Chinese ash, *Tilia mandschurica,* Manchurian linden, and *Cornus macrophylla,* a Chinese dogwood, were among those given to the Garden. These are not currently cultivated at the Garden or at the Arboretum.

During this brief visit, ideas were exchanged and personal contacts made which will result in better botanical gardens in both countries.

Calendar of Events

July 7-27	Photography Exhibit C.C. Johnson Spink, Monday through Friday 9 a.m. to 5 p.m. John S. Lehmann Building
July 7-22	Subtropical Treasures of Japan 10 a.m. to 5 p.m. daily Climatron
July 18	Campaign Workers' Dinner
July 24	Henry Shaw's Birthday Party, 11 a.m. to 2 p.m. Tower Grove House Herb Garden
August 18- Sept. 9	Marigold Exhibit 10 a.m. to 5 p.m. daily Climatron
August 25- Sept. 3	Henry Shaw Cactus Society Show Opening day, 2 p.m. to 6 p.m. 9 a.m. to 6 p.m. daily John S. Lehmann Building
August 25- Sept. 9	Giant Cacti Exhibit 9 a.m. to 5 p.m. daily Desert House

Shaw Birthday July 24

A celebration is near — a birthday party for Henry Shaw! The festivities will be held on July 24, from 11 a.m. to 2 p.m. in the fragrant Herb Garden at Tower Grove House. Naturally, there will be a birthday cake and refreshing lemonade. There even will be a clown who will present favors to the children. And what could be better than having cake and lemonade while Mr. Walter McNichols and his banjo group entertain us all. Don't miss it!

Errata Sheets Available

Errata sheets to accompany Erna Eisendrath's book, *Missouri Wildflowers of the St. Louis Area,* are available to Garden Members and the general public. Interested persons should contact Mrs. Eisendrath at 4969 Pershing Place, St. Louis, Missouri 63108.

Correction

In the June *Bulletin,* Mrs. Jeffrey Burke, a member of the Daughters of the British Empire of Missouri, was identified incorrectly as Mrs. John Matthews. Mrs. Burke, a past president of the organization, donated two benches for the English Woodland Garden as a gift from the Daughters of the British Empire to the Garden.

The MISSOURI BOTANICAL GARDEN BULLETIN is published 12 issues per year monthly by the Missouri Botanical Garden 2345 Tower Grove Avenue, St. Louis, Mo. 63110. Second class postage paid at St. Louis, Mo. $5.00 per year. $6.00 foreign.

Summer Bedding Plants, A Concentration Of Color

During the summer months, garden visitors are treated to concentrated displays of color in the various bedding schemes. These displays are focused in three major areas: the lily pool vista from the main entrance to the Climatron; the area immediately behind or east of the Climatron; and the garden adjacent to the historic Linnaean House. In most instances the plants utilized are annuals, the seed of which is sown under glass around mid-February, and the subsequent seedlings transplanted into peat pots early in April. The final outside planting is undertaken during late May.

Commonly called geraniums, the zonal Pelargoniums are the most popular plant for massed summer displays, and today, many modern cultivars, differing in flower color and form, are available. In common with most bedding plants, good drainage is essential for their success, especially when combined with a sunny situation. *Pelargonium* 'Ringo Salmon' and *Pelargonium* 'Carefree Picotree' are both compact-growing plants utilized in the lily pool vista, the latter producing white flowers with a pink edge and naturally self-branching, thus eliminating the need for periodic pinching. *Pelargonium* 'Ringo Salmon' is combined with the white-flowered, mound-forming *Ageratum* 'Spindrift', a plant noted for its prolonged flowering season. The Floral Carpet strain of the hybrid dwarf *Antirrhinum,* or snapdragon, is also noted for its fine flowering habit and wide range of flower colors. Foliage colorations made the compact Carefree *Coleus* so desirable, although the removal of flowers does help to maintain strong foliage coloration in *Coleus.*

Several different plants are commonly known as Dusty Miller, two of the best with finely dissected silver-gray foliage, *Cineraria martimia* 'Silver Dust' and *Chrysanthemum ptarmiciflorum* 'Silver Lace'. This latter plant is one of the hardiest of these silver foliage subjects, is particularly useful for floral arrangements, and provides a striking contrast when used as an edging plant with the glossy-leaved, rose-flowered *Begonia semperflorens* 'Rose Sensation'.

Equally contrasting are the dwarf, compact, mid-blue flowered *Verbena* 'Amethyst' and *Cineraria maritima* 'Silver Dust'. In order to break up the flatness of bedding schemes, 'standard' plants with a base three-foot stem are incorporated. This year we are utilizing a variegated-leaved *Hibiscus* and the yellow-flowered *Lantana camara* for this effect. It is imperative in this area to ensure that such plants are well-secured to a strong stake; otherwise, serious wind damage is likely to occur.

Immediately west of the Climatron, a wide range of subjects have been utilized in the long, narrow, semi-shaded border. Various compact-growing Impatiens occupy the border frontage, including 'Huckabuc' and 'Twinkles', with orchid/white and scarlet/white, bicolored flowers respectively. Both are profuse bloomers as is the large scarlet-flowered cultivar 'Futura', which also performs superbly in a hanging basket. Both the dwarf form of the blue-flowered Wishbone plant *Torenia fournieri* 'Nana Compacta' and the periwinkle *Vinca* 'Polka Dot' equally tolerate sun or shade. The periwinkle, with its white, cherry red-centered flowers, waxy foliage and creeping habit is, in common with other Vincas, extremely weather-resistant and tolerant of adverse growing conditions. Eye-catching-colored foliage is provided by several subjects equally well known as houseplants, namely, the spider plant *Chlorophytum comosum* 'Varigatum', the silvery-veined aluminum plant *Pilea cadierei,* which may require periodic pinching to encourage side shoot growth, and the Mexican cigar plant *Cuphea ignea* (Syn. *Cuphea platycentra)* with its small, tubular black and white-tipped red flowers.

Petunia Snow Cloud.

Dwarf growing 'Fashion Parade' *Coleus* further demonstrates the foliage versatility of this genus, while the large, variously colored, heart-shaped leaves of the Caladiums provide a lush tropical atmosphere. The circular theme of the Frances B. Stribling Fountain is exaggerated by an adjacent planting of the new and vigorous geranium cultivar 'Jolly Red Wink', with large, rich red, white-centered flowers, and a background planting of large-leaved Cannas. In the two small, formal brick-edged beds which balance the fountain in front, *Dianthus* 'Snowfire' is used as a carpeting — the fringed white and cherry red-centered, bi-colored blossoms contrast

(Continued on Page 4)

BEDDING PLANTS . . . *(Continued from Page 3)*

pleasingly with silvery, blue-green foliage. The impressive white statue of Juno is enhanced with a strong foreground setting of the brilliant scarlet flowers and deep green, glossy foliage of *Salvia splendens* 'Carabiniere' and the soft tones of *Chrysanthemum* 'Silver Lace'.

The historic Linnaean House on which major renovation work is shortly due to commence, forms a spectacular background for floral displays. A carpet planting of *Dianthus* 'Queens Court' with fringed, mixed-colored flowers surrounds the central lily pool and contrasts plantings adjoining the two flanking pools of mixed-colored border periwinkles *(Vinca)* and dwarf *Nicotiana* 'Nicki Hybrids'. These flowering tobaccos grow to about 18 inches tall and produce quantities of sweetly scented blooms throughout summer.

Success with summer bedding plants can be enhanced by attention to certain cultural operations. Prior to planting, the beds should be well cultivated, incorporating a balanced fertilizer (e.g. 12-12-12). Throughout the summer, liquid feed every two weeks with a 20-20-20 formula — this operation undertaken with regular watering. Watering is especially critical during the establishment period of the plants because drying of the rootball results in a severe check or death. Always keep the beds mulched. This will help to maintain a constant moisture level and in the control of weeds. Leaf mould is an excellent and readily available mulching material.

— John E. Elsley
Curator of Hardy Plants

'The Greenery'

The new restaurant, "The Greenery" is now open in the Museum Building.

Food will be served seven days a week, 10 a.m. to 4:30 p.m. Sandwiches, salads and beverages in a wide assortment will be offered.

Campaign Dinner July 18

There will be a special dinner on Wednesday, July 18, to honor the workers who helped make the $6 Million Campaign such a resounding success.

Guest speaker will be Tony W. Baxter of Anaheim, California, who is show concept designer for an "imagineering" firm working with Walt Disney Productions.

The *Bulletin* will soon have a "new look." Premiering in September, the publication will offer many new features for Members.

Because of these changes, a *Bulletin* will not be published in August. Watch for the "new look" in September.

Greg Mohn, Recruiter

Enthusiasm is the best word to describe Greg Mohn. A volunteer for five years, Greg almost bubbles when he speaks of the Garden. Beginning in the Plant Shop, he later became an Answerman and is now serving in a new role.

For those of you who have visited the Garden lately, Greg is the familiar figure at the Main Gate. There he is recruiting new members, renewing old, answering gardening questions. Since he began on Mother's Day, 65 members have been recruited by Greg.

When asked why he volunteers his Sundays in such a manner, Greg said that he enjoys people—meeting and talking to them. He finds this role life-enriching.

The Garden is a better place because of its volunteers, and Greg Mohn is an excellent example.

Staff Promotions

Several staff promotions were announced by Dr. Peter H. Raven, Garden director, effective June 1, 1979. Marshall R. Crosby and W. David Goudy have been promoted to Assistant Directors.

Dr. Crosby is responsible for research and the library. Mr. Goudy is responsible for Education, the Arboretum, Horticulture, Maintenance, Sales and Gate Operations.

Arthur M. Dye, Jr., Assistant Director, assumes responsibility for Public Relations and Publications in addition to Membership and Development.

Assistant Director Charles W. Orner continues to be responsible for the financial operations of the Garden.

Irish Castle, Garden Tour

Limited space is available for Members' eight-day Irish Castle and Garden Tour, September 20-28, 1979. Please call the Member's Office at 772-7600, extension 25, for further information.

Henry Shaw Cactus Society To Hold Annual Show Aug. 25-Sept. 3

The annual Henry Shaw Cactus Society Show will be held August 25 through September 3 in the education wing of the John S. Lehmann Building.

The theme this year: "The Great Southwest." There will be 101 entries from 45 individuals, making this one of the best shows ever.

The lobby will contain a display of memorabilia-photographs and ribbons. The Society has been holding shows at the Garden on an annual basis since 1943.

A display of photographs taken by C.C. Johnson Spink will be on display in the lobby of the John S. Lehmann Building, July 2 through August 10. Many of these photographs feature cacti. The display will then move to the Ladue Bank, August 13 through Labor Day.

Mark your calendars and don't miss the show, open on August 25 from 2 p.m. to 6 p.m. and on August 26 through September 3 from 9 a.m. to 6 p.m.

Harrisia jusbertii, *moon cactus, among the varieties on display in the Desert House during the Henry Shaw Cactus Society Show.*

Natural History Walk

Louis G. Brenner, center, is the naturalist-in-charge during one of the recent Natural History Walks sponsored by the Garden at the Shaw Arboretum in Gray Summit, Mo. Six such programs were held in May and June, utilizing the Arboretum's extensive trail system and guided by selected guest naturalists from the St. Louis area.

Garden Gate For Summer Shopping

The Garden Gate Shop can help you through the summer with refreshing items for pool, patio and barbecue, as well as unique paraphernalia to brighten your home.

Try a Chinese lacquer umbrella for sun, a New York Botanic Garden umbrella for rain or a multicolored umbrella hat for gardening or golf. A stylish new sun visor might improve your tennis game and indoor sports can cool down with any one of a variety of fans, a lá the 1904 World's Fair.

As your garden grows, the Garden Gate Shop can provide you with the latest book on canning or preserving produce and drying flowers. We also have a new line of flower preservative called the Cherish Line, a nice idea for turning a bridal bouquet into a family heirloom.

The cool look of crystal and glass is a relief on hot July days and our crystal bud vases and glass candlesticks are a perfect complement to cold summer suppers.

A crystal pitcher is a wonderful wedding gift, as is our new "sweets'n flowers vase", a striking combination bud vase and candy dish. Ask to see the "root plant bloom", a gift box of three small glass vases just right for water-growers, cuttings or one perfect rose.

When you think of summer entertaining, weddings, birthdays or anniversaries, think of the Garden Gate Shop, open from 10 a.m. until 5 p.m. seven days a week.

Garden People, Garden Events, S

GARDEN PARTY CHAIRMEN – J. Arthur Baer II and Mrs. Eugene M. Reese, center, have been named co-chairmen of "The Garden Party", a gala fund-raising spectacular set for the Garden on Saturday, Sept. 8. At left is Dr. Peter H. Raven, Garden director; at right is Carrick A. Hill, chairman of Stix, Baer & Fuller, which is sponsoring the event.

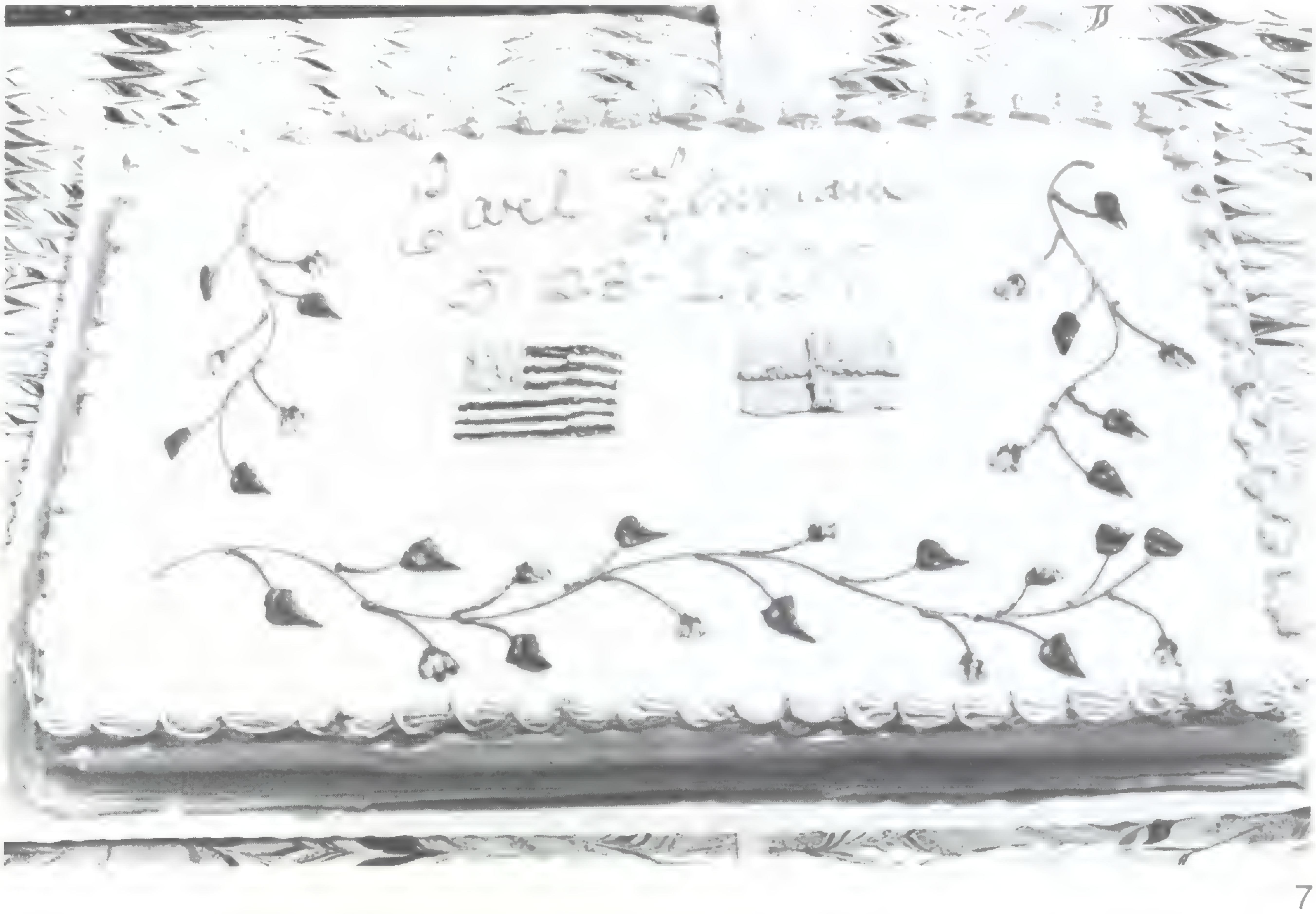
40-YEAR MAN – Al Trentman, a member of the Garden's indoor horticulture staff, completed 40 years of service to the Garden in June. The Garden salutes Mr. Trentman for his many years of dedication, energy and contribution to the Missouri Botanical Garden.

LEGISLATOR'S DAY – Members of the Missouri Legislature paid t May. Strolling near the Japanese Garden are, from left, Rick Daley State Sen. John Schneider; and State Rep. Joe Holt

ng/Summer '79

SWEDISH GIFT – Mrs. Lucianna Gladney Ross, left, a member of the Garden Board of Trustees, accepts contribution from the St. Louis Swedish Council for the Renovation of the Linnaean House. On hand to participate in the ceremony were Mrs. Lilian Morath, right, Council president, and Don Oscarson, honorary Swedish vice consul in St. Louis. The occasion for the presentation was the birthday of Swedish botanist Carl Linneaus, celebrated suitably and appropriately at the Garden with a birthday cake, below.

it during Legislators' Day in
staff; Mrs. John Schneider;



Gardening in St. Louis

The fruits of the past months labors should be evident this month. Herbaceous borders should be a riot of color; hedges, trees and shrubs a verdant green; roses blooming in progression; and vegetable gardens yielding their abundant harvest. Take time to enjoy your private spaces with a backyard barbeque or a few hours with a good book.

Continue to check roses for insect infestations and blackspot. Spray after watering or heavy rains. Continue to feed roses until early August. Remove faded flowers.

Lawns, borders and gardens may need watering. When doing so, water well, the equivalent of two inches of rain. Maintain a regular watering program as needed.

Add more mulch to that applied earlier. As the mulch breaks down, it adds nutrients to the soil and in addition keeps down weeds and reduces soil temperature. Mulches are especially important around azaleas and rhododendrons which are acid loving and shallow rooted.

This is a good time to prune trees and shrubs. Remove weak or damaged branches, open up interior of trees for better air circulation. Evergreen hedges can be trimmed as well. Be certain that your pruning equipment is sharp. There are few things worse than clippers that cut halfway through the branches.

Annuals used as bedding plants should be cut back in August. An application of fertilizer at this time will bring them back to full vigor. Remove flowers as they fade.

VEGETABLE GARDENS

While enjoying the fruits of your labors, plan for fall cool weather crops by planting in mid July or early August. Some suggested crops include carrots, lettuce, broccoli, cabbage, cauliflower, radishes and spinach. Though growth will be slow at first, it will pick up as weather becomes cooler and provide abundant harvest in the fall. Soil should be worked up and fertilized with a balanced fertilizer such as 12-12-12 before sowing seed. Water as needed.

HOUSE PLANT CARE

Plants moved outside from the house should be showing signs of renewed vigor. Maintain a regular schedule of watering and fertilizing. Pots that haven't been sunk in the ground will require frequent watering during hot weather. Rotate the pots to assure uniform growth.

When going on vacation, be certain to have a friend or neighbor water for you. If you wish to leave house plants inside unattended, place well-watered plants in a plastic bag. Place a stake in each pot to keep the plastic bag from collapsing and tie to close. Keep plant out of direct sunlight. Plants should last four to five weeks without further attention.

This is a good time in the growing season to dry plants for winter bouquets. One method is to hang flowers upside down in a cool, dark, airy place. Strip off leaves, tie in small bunches and hang upside down to dry.

Another method is to cover plants to be dried with silica jel crystals. This moisture absorbing material can be purchased at garden centers and florist's supply houses. The stems should be removed from flowers before drying by this method. After drying, stems can be made of wires.

These dried flowers will provide spots of cheer during the winter.

— Barbara B. Pesch

Volunteers pitch in to help keep the Japanese Garden in picture-postcard condition.

The Many Rewards Of Garden Volunteering

You may wonder why anyone would want to offer his or her time — always a scarce commodity — to do volunteer work at the Garden.

But all you have to do is speak to a few of the satisfied people who already contribute their time and skills to help with the important work being done at the Garden and you will soon understand. You will find almost as many reasons for being a volunteer, and as many rewards for doing so, as you will find volunteers. People come to learn; people come to meet and help others; people come to spend time in an enjoyable and relaxing atmosphere; and people come to make an important contribution to the work of the Garden. All of these diverse needs can be satisfied by volunteering in one of the many different departments of the Garden.

For example, volunteers wanting to learn about plants can find satisfaction by working with the horticulture department or in the herbarium. Volunteers are instructed by members of the horticulture department in gardening techniques and can use these new skills in such beautiful surroundings as the Japanese Garden, the English Woodland Garden and the rose gardens.

For volunteers who would prefer to work indoors in a pleasant, climate-controlled atmosphere, help is needed in the Garden's modern herbarium where dried plant specimens from around the world are sorted, labeled and mounted. The herbarium is an important part of the Garden and an important contribution can be made as a volunteer learns about the plants in the herbarium's collection.

For those people who enjoy meeting and working with people, the Garden can provide a wonderful opportunity. For example, volunteers are needed to show visitors through Tower Grove House. After learning the fascinating history of the house, volunteers are assigned to conduct tours through the beautifully restored country home of Henry Shaw. This is a particularly good position for volunteers interested in history and antiques. Volunteers who simply like to converse with the public will be happy giving out membership information at the Main Gate.

The greatest reward for volunteering at the Garden is the satisfaction derived from doing a job that needs to be done. Volunteers can do jobs that interest them and know they are serving an important need of the Garden. Sheri Murphy, a staff member in the herbarium who has worked with many volunteers, realizes that some volunteers may not see the direct benefit of their work but do the jobs they are given because they know they are satisfying a real need. Other volunteers can see the results of their work immediately.

In the Garden's bindery, where old botanical books are re-bound, you can find "book conservators" who either are or have been volunteers. The head of the department, Morton Deutch, began more than two years ago as a volunteer because the work of the bindery interested him more than his work as an engineer. After six or seven months of volunteering, learning about his new occupation all the while, Mr. Deutch was able to fill an opening in the bindery.

Volunteer Raymond Senuc's occupation is hand book binding but there are few places where this is practiced anymore. By volunteering, Mr. Senuc can "keep his hands in" his work until he can find employment in his field.

While Mr. Senuc is new as a volunteer, Mary Wahl has been a volunteer for about ten years. She finds the Garden a very pleasant place to work and feels it is rewarding to "take an old beat up book and make something out of it." For Mary, her job of "keeping the library intact" is an enjoyable occupation; for the Garden this job is a necessary one.

Several volunteers are retired from their former occupations and find something in volunteering that is like a hobby but much more; their work is needed and appreciated by the Garden. Mrs. Rose Preisack retired from Famous-Barr where she acquired the skill of working with people. She uses this skill in her position as tour guide in Tower Grove House. She is proud of the locket she was awarded for putting in the most hours last year. Mrs. Preisack enjoys her job and "enjoys being faithful to the house."

Walter F. Thompson, who works in archives, is also retired. He is a delightful volunteer of sixty years who will frankly tell you he was "tired of sitting." Mr. Thompson says the old saying, you can't teach an old dog new tricks "is for the birds." He has learned a great deal in his year at the Garden and says he has more to learn. These people are happy working one or two days a week at the Garden, learning and finding pleasure in their work.

These are just a sample of the 400 volunteers who contributed 42,000 Garden hours last year. Volunteers are always needed, though. Volunteering is an interesting and pleasurable learning experience, and volunteers are needed by the Garden and the city to which it is dedicated. If you would like to be one of the special people who contribute so much to the Garden, please fill in and mail the coupon below.

MAIL TO:
Carol Taxman
Missouri Botanical Garden
2345 Tower Grove Ave.
St. Louis, Mo. 63110

I would like information on
volunteering at the Garden

NAME ______________________

ADDRESS ______________________

CITY ______________ ZIP __________

TELEPHONE ______________________

Native Plant Society Formed

A Missouri Native Plant Society has been formed to promote conservation and study of the native flora. Dues are $5 per year and can be sent to Jim Henry Wilson, Missouri Department of Conservation, P.O. Box 180, Jefferson City, Missouri 65101.

Newly elected officers of the Native Plant Society are: Jon L. Hawker, president; Edgar Denison, vice president; Paul Nelson, secretary; Jim Henry Wilson, treasurer; Erna Eisendrath, editor; and Ken Olson, Arthur Christ, Melvin Conrad, Mary Wiese, John Karel, and Robert Mohlenbrock, directors.

NEW MEMBERS — MAY 1979

NEW SPONSORING MEMBERS

Miss Anna Hahn

NEW SUSTAINING MEMBERS

Mr./Mrs. Bert Begeman
Mr. Howard C. Blossom
Mr./Mrs. Joseph L. Kurz
Dr. William Langner

NEW CONTRIBUTING MEMBERS

Mrs. Bea Adams
Miss Maxine Burnside
Mr./Mrs. Jack M. Chasnoff
Mr./Mrs. Richard V Cross
Dr./Mrs. Robert B. Deitchman
Mr./Mrs. A. S. Dennis
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In Memory of Mr. and Mrs. Gustav Emil Oscarson
Mr. R. Don Oscarson

In Memory of Alfred and Albertina Peterson
Mr. Joseph Peterson
Mr. Gustav Peterson
Mr. John Peterson
Mr. Henry Peterson

In Memory of Anna Sellin
Mrs. Donald Dickey

In Memory of Arthur W. Swenson
Mrs. Arthur W. Swenson

In Memory of Theresa Verdonkschot's Father
Mr./Mrs. Glenn L. Munson

In Memory of Anna Mathilda Westlund and Gustaf Iver Anderson
Mrs. Mildred G. Lammi

MISSOURI BOTANICAL GARDEN BULLETIN (USPS 354-860)
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Missouri Botanical Garden Bulletin

Campaign Workers Honored For Phase I Success

Tony Baxter, left, show designer for Walt Disney Enterprises, discusses "Imagineering" concepts with Shaw Arboretum Superintendent George Wise during the recent dinner honoring Garden campaign workers.

Campaign workers involved in the successful Phase I drive for the proposed Visitors' Center were honored at a dinner on July 18 in the John S. Lehmann Building.

Tom K. Smith, Jr., addressing the attending guests, congratulated the hard-working volunteers whose time and talents resulted in raising more than $6 million for the building. The chairman of the campaign, Robert R. Hermann, was presented with a Steuben glass eagle honoring him for his successful fund raising efforts.

The campaign was only the second capital campaign in the Garden's 120-year history and is the final phase of the 1972 Master Plan. The maintenance complex, a part of the new north end development, has been completed and is now in use.

Guest speaker for this special event was Tony Baxter, show designer for Walt Disney Enterprises. Mr. Baxter challenged the assembled guests with his stimulating ideas and some of the parallels between Disney's concepts and those of the Garden.

Though the business of Disney Enterprises is to entertain, there are many other subtle messages in the company's theme parks and its films. The parks demonstrate how our environment could be enhanced by removing distractions and contradictions. In addition, touches of magic serve as stimuli for the imagination.

The harmony of the environment in the parks is created by the careful blending of architecture, plant materials and surface textures. These pleasing elements are a direct contrast to the contradictions of unchecked urban growth, which produces confusion and ultimately stifles the creative process.

The goal therefore is to open the windows of people's minds, to raise their standards by exposure to new elements, to challenge them to learn more about the environment in which they live.

Mr. Baxter explained that what we do with the proposed new facility will have a great deal to do with how people perceive the Garden as a whole. How can we reach out to the community of St. Louis and make this Garden accessible to as many of the citizenry as possible?

Dr. Peter Raven, Garden director, responded to the challenge: "The Garden has played a significant role in St. Louis for the past 120 years and the standards raised are evident.

"We have wonderful things in store for the future — what has been done and what we are about to do.

"The assurances you have given us — the trustees and members of the St. Louis community have given us a secure and creative future for the Garden and the encouragement and hope to continue.

"We'll go on to bigger and better things in the future. We accept the creative challenge offered us."

Calendar of Events

September 8
The Garden Party Benefit
5:30 — 11 p.m.
Garden grounds

September 15-16
Dahlia Society Show
Sept. 15—1-5 p.m.
Sept. 16—9 a.m.-5 p.m.
John S. Lehmann Building

September 15-16
Fall Plant Sale
9 a.m. - 5 p.m.
Plant Shop and Head House

September 22-23
Men's Garden Club
Harvest Show
Sept. 22—1-5 p.m.
Sept. 23—9 a.m.-5 p.m.
John S. Lehmann Building

Comment—

Dr. Peter H. Raven

We received a surprising number of complaints from Members who were upset because their July *Bulletin* was late. I am truly sorry for our tardiness. But I am glad to have this additional evidence that the *Bulletin* is appreciated.

From time to time, we go through a period of soul searching in which we try to balance the increasing cost of printing and mailing the *Bulletin* against the benefits. The purpose of the *Bulletin* is to let you know what is happening and why. Judged by this modest goal, I think the *Bulletin* is a success. In fact, I am pleased to report that the *Bulletin* is this years' recipient of the Dorothy E. Hansell Publication Award, given annually by the American Association of Botanical Gardens and Arboreta for the best publication by a botanical garden.

But to get to the point, we think a good thing can be better. Gradually over the next year we will introduce a new format for the *Bulletin* which will give a better picture of the Garden's activities. In part because of increasing costs and in part to provide more time for preparing each issue the number of issues will be reduced to six a year. (January, March. May, July, September & November).

Ultimately it's what you think about the *Bulletin* that really matters. I want to encourage you to write with suggestions and criticism. I assure you any ideas you share with us will be taken very seriously.

Peter H. Raven

Membership Benefits

A regular membership to the Garden includes the following:

* Free admission to the Garden, Tower Grove House and Shaw Arboretum for two adults and children under 16.
* Subscription to the Missouri Botanical Garden *Bulletin* published six times per year.
* Discount at the Garden Gate Shop and Plant Shop.
* Invitations to special events, preview parties and lecture series.
* Advance registration and special discounts on all courses.
* Travel opportunities.
* Use of the horticultural reference library.

Members who have lost their cards may obtain a duplicate by sending one dollar to the Membership Office, P.O. Box 299, Saint Louis, Missouri, 63166.

Course brochures for classes will be arriving soon. Be certain to sign up early for the classes of your choice.

The Garden Party

A limited number of reservations are still available for "The Garden Party," a September 8 benefit sponsored by Stix, Baer and Fuller Company. The proceeds will go towards covering the cost of the Garden's new floral display tent.

"The Garden Party," an evening of gourmet dining and delightful entertainment, will begin at 5:30 p.m. with cocktails. A deluxe picnic will be served beginning at 6:30 p.m. Guests may dine under the stars at their favorite spot in the Garden or in the new tent. Dancing to the nostalgic tunes of the Gateway City Big Band will follow at 8:00 p.m. under the festive tent top. The cost is $30.00 per person, $15 of that tax deductible to the extent allowed by law.

For a very special evening, make your reservations for "The Garden Party" now by telephoning the Members' Office at 772-7600, extension 22.

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Profile: Common Plants, Uncommon Artist

Mary Gamble, artist in pressed plants

Appearances are deceiving. Plants that may look like common plants, even weeds, can be turned into beautiful decorations which have a purpose and can serve as educational tools. Mary A. Gamble, a 20-year member of the Saint Louis Herb Society, is involved in working these incredible transformations in the pressed flower workshop which she conducts at the Garden for Herb Society members. With the cooperation of many others, Mary uses pressed flowers, leaves, herbs, and what many call weeds to make pictures that can be framed. But these pictures are more than decorations, for each picture has purpose and educational value.

The workshop is an outgrowth of a project begun two years ago to identify Herb Society activities beyond its traditional ones. The phase Mary works in, called "Herbs and Art," particularly interested Mary because she likes to work in something that forces her to "dig in and learn."

A great deal of research is involved in this project and Mary had to read books on herbs in a way she had never done before. The Herb Society wants people to learn the history and uses of herbs. Each herb picture has some purpose, either botanical, historical or to demonstrate the use of plants. Each picture has meaning behind it, literally, for on the back of each there is an envelope containing information on the history and uses of the plants used in the picture.

Mary regrets that some members of the Herb Society consider her work "artsy-craftsy" for she does not. "I don't consider it an art or even a craft, but a pleasure that has great educational opportunities."

According to Mary, the technique used in making the pictures is simple but takes persistence. The real work is planning and research. Members of the Herb Society were given a list of about 200 plants desired for the project and with the cooperation of these people, the Garden and others, almost all of the plants have been acquired. Mary says she received "perfect cooperation from the Garden" where extra plants were grown for the project. The Garden also has been helpful in research and has advised Mary in making the pictures.

The pictures will be displayed and sold at the Garden's Spring Flower Show in 1980. The exhibit, "Pictures from the Garden," will include 65 pictures on display and more for immediate sale. These pictures would be especially appropriate for a garden room. There are a great variety of pictures including series of collages using pictures of birds, insects and even cats with pressed catnip. There is a series of medicinal plants and one of culinary plants on plates for kitchens. A series of "your favorite flower" should be popular and Mary would like to do a series of pictures associating plants with astrological signs.

Mary stresses the educational value of the pictures: "I don't like to work on anything where I am not learning" She wants others to learn, too. She finds it interesting to "tie the lore and the plants together." For example, daisies almost always have an odd number of petals so that if you begin plucking petals on an optimistic "he/she loves me" you can't help but end that way. Many interesting facts can be found in the information on the back of each picture.

Mary says she has avoided the use of exotic plants because of the desire to use herbs and common plants. Mary "has gained a new respect for weeds." She feels that too many plants have been placed in the weed category much too soon. Seeing the pictures made with these "weeds" will convince anyone of that. Mary finds that "putting these pictures together increases your sensitivity to the beauty of common plants." This is true for the beholder of these pictures as well. The Herb Society and its members, Mary Gamble in particular, have worked very hard to make this project a success.

It seems destined to be successful, judging from the beautiful, interesting, useful and educational results of the Society's labors.

Watch for these unique spring pictures at the Spring Flower Show.

Collector's Items . . . The Cacti Of The American Southwest

To most people, cacti are synonymous with the desert. The name cactus is derived from the Greek word kaktos, meaning thistle plant. Cacti are located basically in arid regions of the Western Hemisphere.

Interest in cacti as collectors' items began only after the discovery of the Americas by Europeans. The "cactus craze" was started by a Spanish king in the late 1700's. By the 1800's the cactus business was flourishing for the French and Germans. Now growing cacti is not just for the rich or those of royal blood, but is a hobby for anyone.

In this country, cacti are particularly abundant in the southwestern states of Arkansas, California, Louisiana, Oklahoma, Texas, New Mexico and Arizona. Dr. George Englemann did much of the identification of southwestern cacti at the Garden at the request of Henry Shaw. Dr. Engelmann was one of the first botanists to study the cactus family in detail and to describe and name many of the cacti that may be found in the United States. Among the characters he used to distinguish them were variations in their spiny pore structures, called areoles, type of flowering, ribbing, and growth habit.

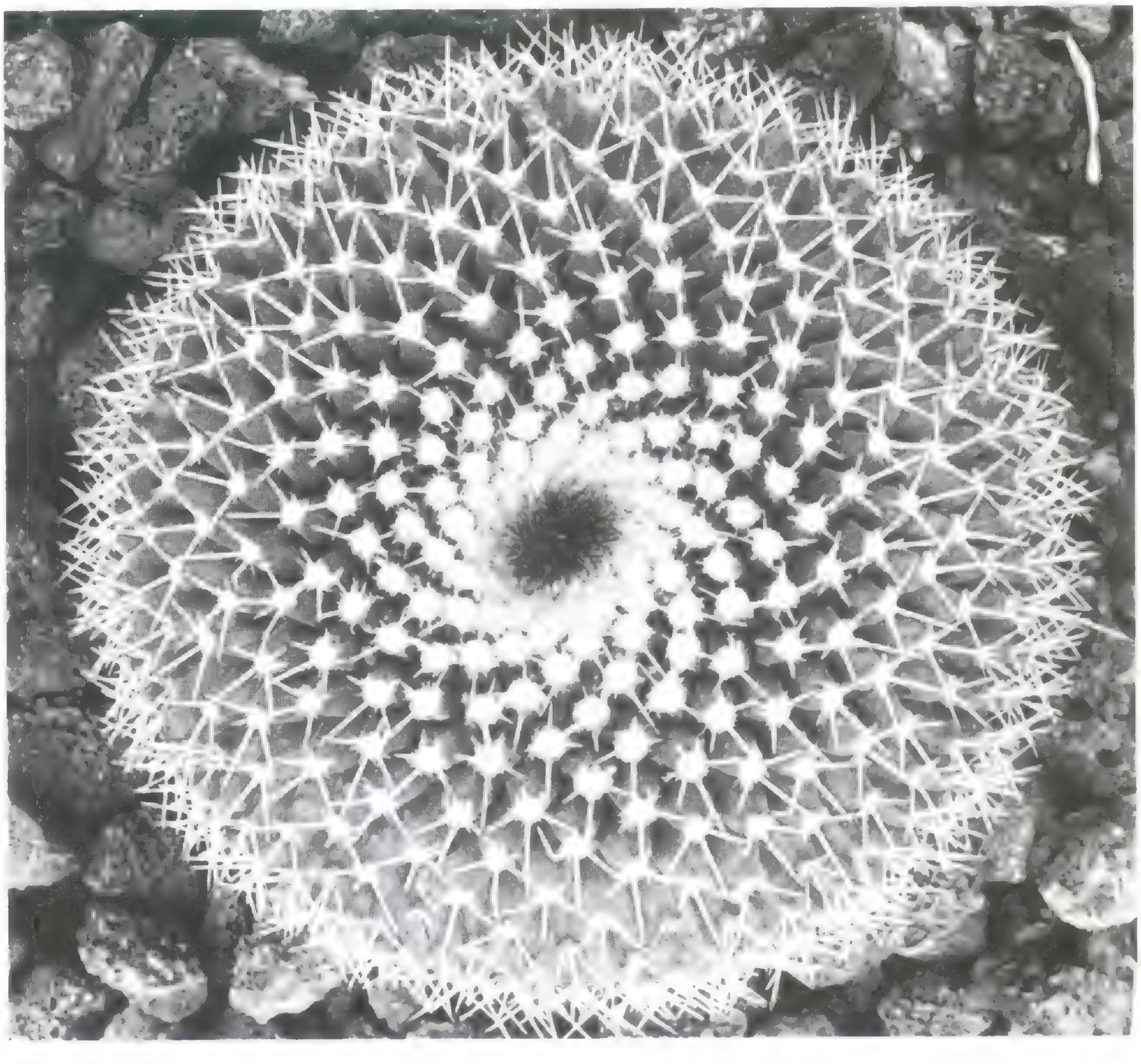
The cacti described here are suited for pot culture. Though some will become too large at maturity for most households, they will give the cactus enthusiast many years of pleasure before new homes need to be found for them.

The hedgehog cacti are multi-branched, cluster-forming cacti which usually don't grow more than two feet tall. Their scientific name, *Echinocereus*, is derived from the Latin names echinos, meaning spiny, and cereus, meaning wax candle, referring to the numerous straight or curved spines along their ribbed stems. They are among the easiest cacti to flower on the windowsill or in the home greenhouse. On hedgehog cacti, magnificent blooms ranging in color from purple to white are produced on the sides of long (5-12 cm.) stems. Blooms of some species of *Echinocereus* will remain open for a few days, but on most, they will remain open for only one night. Two species of awesome beauty are *Echinocereus fitchii* and *Echinocereus engelmanii*. The former has large and showy pink blooms with dark reddish-brown centers. The stems of their blooms resemble spun cotton. The latter has purple flowers that are so beautiful in bloom that it is a favorite with cacti fanciers. The fruit of some species of *Echinocereus* is edible and tastes like a strawberry (e.g., *Echinocereus enneacanthus*).

Barrel cacti are assigned to two genera — *Echinocactus* and *Ferocactus*, primarily on the basis of the arrangement and curvature of their spines. Echinocacti have very rigid spines along deep vertical or spiral ribs. Their crowns are of a wooly nature. Spines on echinocacti are angular but not hooked. Flowers are produced at the apex of the plant. *Echinocactus grusonii,* the golden barrel (or ball) cactus, is a pale green plant with very colorful, contrasting yellow or white spines. Mature plants are about three feet tall. The golden barrel is a very popular specimen with cactus enthusiasts. *Echinocactus horizonthalonius,* the mule crippler, is much smaller barrel cactus. It is grey-green with very tough spines and may take more sun and drier conditions than other barrels.

Ferocacti are more commonly known as fish hook cacti. The spines on *Ferocactus* are curved rather than angular. The most common of the fish hook cacti is *Ferocactus wislizenii* — a brown-and-red-spined species which is more columnar than other barrels, reaching a height of about 10 feet. The blooms of this plant arise from the apex and range in color from yellow to orange-red.

The tallest cactus in the United States is the picturesque Saguaro (*Carnegiea gigantea*), truly a symbol of the great southwest. It grows slowly, taking 60 to 70 years to reach reproductive maturity and 150 years to reach its full stature of 50 feet. Its stems are long, cylindrical and multi-ribbed. The blooms on this enormous cactus are white, about five inches long, and last only one day. The fruit is scarlet red. It is a rather difficult plant to grow to maturity because of its cultural requirements. The Saguraro is now being carefully monitored because of man's destructive activities in



Mammillaris globeon

its fragile natural habitat. This giant is dependent not only on the long-nosed bat and the white-winged bat for pollinating its flowers, but also on two "nurse trees", the palo verde and the mesquite, for protection during its early development. Without this balanced community, this symbol of the American southwest will simply disappear.

At the other end of the scale are small cacti belonging to the genus *Mammillaria*. They are characterized by spines arranged on small raised areas which form a spiral row around the plant. Their blooms form a circle around the crown of the stem. Later, black seeds are enclosed in a red translucent pod, which adds some color to the fruiting plant. Most mammillarias are suited for windowsill culture. *Mammillaria bombycina* produces a multi-headed clump of cream-colored stems with white spines and brown tips. The beauty of this magnificent cactus lies in its blooms. The flowers have small pink petals with darker pink stripes on the outer edge and a crimson base. Another mamillaria which resembles small cotton balls clumped together is *Mammillaria plumosa*. Its white spines are soft and cover the plant so thickly that it is hard to see the delicate white flowers that lie beneath them when it is in bloom. Another of nature's wonders, *Mammillaria woodsii*, is much larger than its close relatives. When this plant reaches reproductive maturity, its cottony crown develops a ring of small carmine-colored flowers. Its spines are rather small and dark brown; as the plant matures, they elongate and turn cream-colored.

The first genus of cacti to be discovered in the United States was the opuntia. Opuntias can either be treelike, up to 10 feet high, or shrubby, only three or four feet high and as much as 10 feet wide. Their pads may either be flat (prickly pear type) or oval (cholla type). The cactus enthusiast should be careful in choosing species from this genus for cultivation. They can quickly become overgrown and a nuisance. Opuntias, especially those belonging to the cholla group, are loosely jointed, branched cacti that attach themselves very rapidly to an individual if one rubs against their spines. Even if a section of the stem does not become attached to the unwary passerby, glochids (small spines) may and will cause skin irritation. Two that are suitable for home culture are *Opuntia violacea* var. *santa-rita* and *Opuntia basilaris*. The former is a shrubby specimen and very colorful in the spring with its yellow flowers resting on top of a purple-streaked pad. The latter, commonly known as beaver tail, is also an attractive plant, whether flowering or not. It has a dense, compact growth habit. The pads have a greenish-purple velvet sheen when the plant is grown in full sun. Its large blooms range from deep rose to light purple in color and, if more than two open at the same time on any one pad, they will completely cover it.

Aloe nobilis, *gold tooth Aloe*

Cacti adjust very readily to the average home environment. Their demands are not great. If the cactus enthusiast remembers three important factors — good light, careful watering and a porous soil medium — most cacti will grow satisfactorily.

Light is essential as cacti are light-demanding plants. Do not place them too far from a good source of light. Southern or southwestern exposures are the best for cacti. During summer months after the frost-free date, they can be moved outside. Move them gradually into a location receiving direct sunlight.

If you grow cacti under fluorescent lights, use tubes that most closely approximate natural daylight. Sixteen hours of artificial lighting is required for proper growth. Whether your light source is natural or artificial, rotate your cacti on a weekly basis so that all sides receive uniform amounts of light.

Overwatering is the greatest cause of problems in growing cacti; water very sparingly in the winter months. During the summer, water thoroughly on a frequent basis, about once every other week or once after five consecutive days of hot, sunny weather. Remember that an increase in warmth and sun means you increase watering, and a decrease in both means you decrease watering.

A porous and permeable soil is required for cactus. Pre-mixed cactus soil is suitable but expensive. If you develop an extensive collection, you will be faced with repotting, in which case a general potting soil mixed with an equal amount of sharp sand is advisable. Cacti benefit from a very small amount of bone meal and ground limestone when being repotted. A teaspoon of each to a four-inch pot is satisfactory. Many mentioned here are readily available at most local plant shops or through specialty shops in the southwest. Listings of such firms may be found in cactus journals or horticultural magazines.

There are some very good books on cacti in many of our local bookstores. The leading references are *Cacti of the Southwest*, by Del Weniger, published by the University of Texas Press, Austin and London; *Pocket Encyclopedia of Cacti*, by Edgar and Brian Lamb, published by McMillan Company, New York, New York; and *A Cactus Guide*, by Ladislaus Cutak (a former horticulturist at the Garden), published by VanNostrand Reinhold, New York, New York.

An exhibit featuring the Garden's collection of these and other succulent giants of the American Southwest will be in the Desert House, just south of the Climatron.

— Bill Wagner

Renovation And Recreation: A G

FOUNTAIN OF YOUTH – Young Garden visitor finds watery relief from summer heat.

SMALL PURCHASE – Young patron of the recent Plant Sale finds shopping satisfaction in a violet selection.

CHILDREN'S DAY – The Japanese Garden pool provides ideal launch site for very small boats during the Garden's recent Childrens' Day event.

len Summer

RENOVATION – Phoebe Dent Weil, right, art conservator working on the renovation of the Linnaean House, begins restoration work on the building's capital statuary. Busts of Dr. Asa Gray and Linnaeus, above, present new (and clean) faces to Garden visitors.

ARROWFLIGHT – The hot air balloon "Arrow" soars skyward over the Garden during the recent Summer Solstice Party.

News Notes

Fall Harvest Show

The Greater St. Louis District, Men's Garden Clubs will present its Fall Harvest Show at the Garden September 22 and 23. Members of men's garden clubs from many areas of St. Louis will participate. The show is also open to amateur growers. The John S. Lehmann Building will house this event, which will be open to the public from 1 to 5 p.m. Saturday, September 22; and 9 a.m. to 5 p.m. Sunday, September 23.

Dahlia Society Exhibit

The 46th Annual Midwest Dahlia Show will be presented by the St. Louis Dahlia Society at the Garden September 15 and 16. Exhibitors from all over the Midwest will display dahlias in a multitude of sizes and colors. Members of the Dahlia Society will be on hand to answer questions for the public. The show will be held in the John S. Lehmann Building on Saturday, September 16, from 1 to 5 p.m., and Sunday, September 16 from 9 a.m. to 5 p.m.

Plant Shop Aquatics

Treat your finny friends to an environment of live aquatic plants from the Garden's Plant Shop. With many pet stores selling only plastic greenery for aquariums, this new addition to the Plant Shop's selection will be important to people who care about their fish. Plants such as *Salvinia,* a floating fern with small rounded leaves; *Anacharis,* which floats or can be planted; or bladderwort, a floating insectivorous plant, are just a few examples of what the Plant Shop has to offer. Have a cleaner tank and healthier fish. Buy some live plants at the Garden's Plant Shop.

Fall Plant Sale

Tell friends that your feelings for them are growing with a green gift from the Garden. The Plant Shop's Fall Sale, September 15 and 16, will offer thousands of ways for you to express yourself with many tropical plants. Show grandmother your gratitude with a gesneriad, send a succulant to a sophistocate or a cactus to the unconventional. For the well organized plan-ahead person there is a fine selection of spring flowering bulbs to plant now and enjoy next year. And don't forget to be good to yourself, perhaps with an exotic orchid.

The Plant Shop's Self Expression Sale will be held in the Plant Shop and the Orchid Range. Top off a lovely day at the Garden by taking some of it home with you, or just visit the Plant Sale by entering the Garden through the west gate of the visitor's parking lot without charge. The sale will be held from 9 a.m. to 5 p.m. both days. Members will receive a 20% discount. Buy $30.00 worth of plants or more and receive a free Japanese Garden poster. Buy $70.00 worth of plants or more and take home a free delphinium print, too.

Let the Garden help you express your feelings; say it with a plant.

TGH Tea Room

A delightfully different leisure-time environment is offered in the Tea Room at historic Tower Grove House every Tuesday and Thursday, where tasty lunches are prepared by volunteers for visitors to the Garden.

The summer luncheon menu includes an excellent chicken salad garnished generously with fresh fruit, a roll, beverage and two iced cakes, similar to petit fours, for desert; or a fresh, and refreshing, fruit salad, cottage cheese, three small sandwiches with a variety of fillings, two iced cakes and a beverage. This cool and delicious menu will be replaced next month by a hearty winter menu offering a choice of spinach quiche, chicken divan or lasagna.

Luncheon accomodations are available for approximately 22 diners in each of the two ground floor rooms of Henry Shaw's country home. Service begins at 11:30 a.m. and the tea room closes at 2 p.m. Please make your reservations at least one day in advance by calling Mrs. Jane Coultas at 773-9000.

Autumn Foliage Tour

Come with us to Shaw Arboretum for a guided tour through the fields and woods highlighted by autumn coloring in its full splendor. This will be a chance to see the fall hues of Missouri foliage. On Wednesday, October 17, buses will depart from Westroads Shopping Center parking lot at 9:30 a.m. and return at 3:30 p.m. Part of the day will be spent visiting a local historic site. Some walking is necessary. Box lunch is included. The fee will be $17.00, Members $15.00. For reservations, please call the Members' Office at 772-7600, extension 22.

Arboretum Classes

Several new offerings will be featured in the new course brochure this fall. These booklets should be in the mail soon so watch for your copy.

Saturday morning family walks of two hour duration will be designed to heighten participants' awareness of their natural surroundings. Acclimatization techniques will be used and family sharing should provide a unique and pleasurable experience. Dates: September 15, 22, 29.

Informal natural history walks will utilize the Arboretum's extensive trail system and will be guided by St. Louis area guest naturalists. These walks will be offered the first three Saturdays in October.

Another new class will concentrate on the insect world. The interrelationship of insects and plants will be stressed.

For further information, consult the new fall course brochure or call 772-7600, extension 81.

New Restaurant Open

The Greenery Restaurant in the pleasantly decorated museum building is open from 10:00 a.m. to 4:30 p.m. and offers an assortment of food. For a mid-morning treat, breakfast rolls and coffee are served. For lunch there are salads, sandwiches, soup and chili. Salads include a tossed salad, chicken salad and tuna salad, which will be served daily. A list of other salads, two of which will be served alternately, includes jello salad with fruit or vegetables, fruit salad, bean salad, carrot and raisin salad, tomato and onion salad, and beets and onion salad. Freshly sliced hot beef, pastrami, or corned beef sandwiches will be served along with hot dogs, chili dogs and bratwurst. Delicious pies, soft ice cream and frozen chocolate-covered bananas will top off a lunch or make a pleasing snack. Popcorn, soft drinks, iced tea and coffee are also served. Whether for a light snack or for lunch, try the Greenery Restaurant soon.

Gardening in St. Louis

The harvest season approaches and hints of the changing season begin to appear — evenings become cooler, the air a bit clearer and thoughts turn to fall gardening tasks.

If you haven't made notes on changes you want to make in your garden next spring, do it now before the ideas slip away. Your own experiences in your garden provide clues to present and future successes. Each area has its own micro climate which will provide the ideal location for certain plants. Your experience will be your guide.

Lawn Care

This month is a perfect time for lawn renovation. The summer has been a dry one so lawns may have suffered unless close attention has been paid to watering.

September is the best time to fertilize lawns. Apply a well balanced lawn fertilizer at the rate recommended. If thatch has built up, it would be wise to correct the problem as the thatch provides a barrier to water. Power rakes can be rented for dethatching. Perform this task early in the month.

Areas where grass is sparse can be seeded or sodded. Prepare the soil first, adding fertilizer and lime if needed. Keep area well watered until the grass is established.

House Plant Care

Plants that have spent the summer outside should show new vigor and vitality. Check carefully for insect and disease problems and treat accordingly. If repotting is necessary, now is a good time to accomplish that task while it can be done outside. Select a size larger pot, provide good bottom drainage and a well draining potting mixture.

If pots have been sunk into the ground, remove carefully, breaking any roots that may have gone into the ground. Allow the plants to stay in place for a day or two.

When evenings begin to get cooler, it is time to bring the house plants inside once again. Make the transition slowly. Move plants to a place where there is less sun and protection from the wind. Reduce watering to keep plants on the dry side. After several days move into a garage or someplace where the light is even more reduced and then after a few days move inside.

Continue to fertilize blooming plants on a regular schedule. Reduce the application of fertilizer to other foliage plants as growth will now slow down. Watch watering carefully as those requirements will be reduced as well.

Odds and Ends

Evergreens can be transplanted from the middle of the month onward. Deciduous shrubs and trees can be selected at the nursery while still in leaf. In fact, if selecting any of them on the basis of fall color, do so when color is at its best. When the plants go dormant, then transplant. Evergreens, trees and shrubs planted in the fall establish roots before the season ends and have a head start in spring. Keep watered and mulched.

Divide perennials, discarding the centers that are old and woody if needed. Work up beds to a depth of 12 to 14 inches, adding organic matter and superphosphate. Plant perennials in prepared beds, mulch and keep watered.

If late blooming shrubs have not been pruned, do so now. Cut back to control height and prune to shape. Remove any dead or broken branches.

Clean cold frames and greenhouses while weather is good. Cold frames should be cleaned and prepared for spring. A few vegetables can be grown in the frames for later fall harvest.

It isn't too soon to check fire wood supply and order for fall and winter use. With thermostats turned lower this year, that fireplace will add welcome warmth as well as cheer.

Enjoy the fleeting days which always seem even more precious at this time of year.

— Barbara B. Pesch

AAM PLANS GARDEN VISIT — Members of the planning committee of the American Association of Museums meet to plan the AAM Trustees Committee Fall Conference. From left are Harry E. Wuertenbaecher, Jr., Mrs. Monte C. Throdahl and George S. Rosborough. Conference attendants will visit the Garden on Friday, October 12.

A Letter From Panama:

Dr. William G. D'Arcy

El Barú at an elevation of more than 6,000 feet is serving as a base for my Earthwatch expedition in Panama. This mountain is the highest in Panama and as such is rather cool; it is only 60° here in contrast to the usual 80° at lower elevations.

Our expedition is made up of an interested and dedicated group of people. I should tell you that Earthwatch is an organization that serves as a clearinghouse matching people's interests with projects that need interested people. Projects include research in almost all areas of endeavor.

I'm pleased to be participating in this particular project because it makes it possible to survey the vegetation and document a recently established national park. This data will provide the basis for land use planning.

We made more than 2,000 collections in the two expeditions — several specimens discovered and several rediscovered. Others that were known in other Central American countries were found here as well.

This trip allowed me to make further preparation for our symposium in April, 1980. I met with the local committee and we have been making preparations for translators, meeting places and hotels in Panama City. Attendance will number 400 or more from all over the world. The papers presented will cover all of the natural history aspects of Central America. Conservation will be the key issue.

As a result of this symposium, a color pictorial volume will be published containing all papers presented. The book will provide a resource volume for anyone interested in the natural history of Central America and Panama. There are 60 invited speakers whose papers will be included.

I've made progress in making arrangements for the exciting event. I'll return next October, but all goes well so far.

— Bill D'Arcy

Dr. William G. D'Arcy is an Associate Curator and is editor of the Flora of Panama.

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Missouri Botanical Garden Bulletin

Volume LXVII Number 9
November/December 1979

The Garden Library: Preserving The Past

Restoration, renovation, preservation — how do such terms apply to the library of a botanical garden?

The Garden has its own bindery. The art of book binding and book restoration takes years to master. There are few competent professional hand binders left in this country. However, as part of the library's operation several staff people and volunteers carry out this skilled art.

Since the library collection consists of a large number of old books, restoration and preservation play a large role in maintaining the health of the collection.

Books have many enemies — humidity, heat, light, molds, mildews, floods, fire, careless users, insects, rats and air pollution are just a few of the culprits. Before being placed in the present location, the John S. Lehmann Building, the library collection was exposed to all of these hazards except flood and fire.

Countless books and journals printed in the 19th and 20th centuries were printed on paper with a high acid content. As the years go by, this paper becomes discolored and brittle. Such books must be treated with special care.

In many cases special boxes are made to hold such valuable but fragile books. These boxes can be shelved without fear of further damage to the book.

When binding and restoring books, special attention and care is taken to bind the book in a manner as closely imitating the original as possible. Such conservation efforts require great skill and attention to detail and hours of effort.

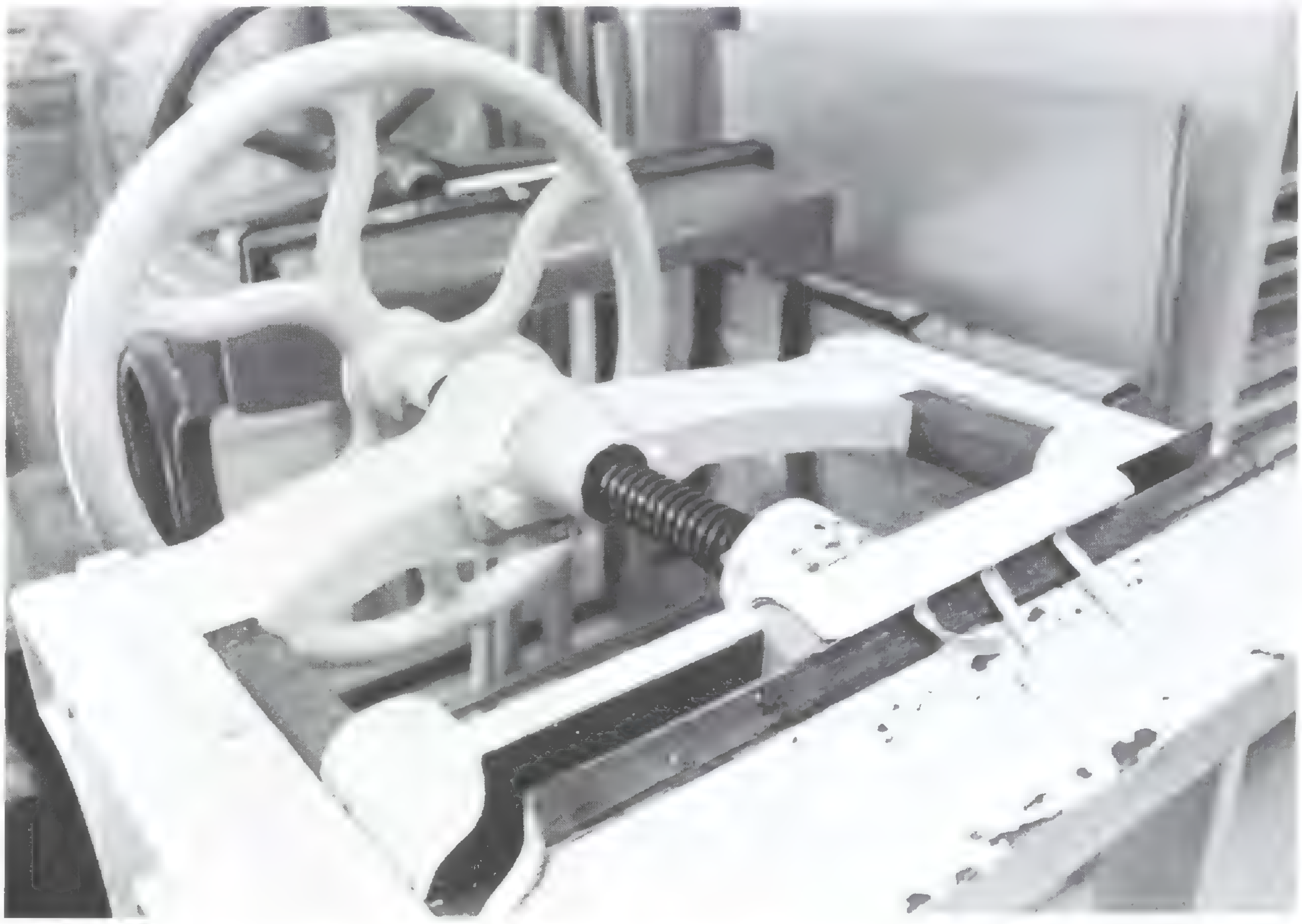
Through the generosity of CAMELOT, the bindery staff and volunteers have performed preservation work on nearly 20 percent of the bound volumes in the collection in the past five years. As well as working to preserve books and periodicals, the library also has one volunteer who works regularly to preserve maps, prints and other single-sheet items.

From the opening of the library in 1859 with a few hundred books selected by Dr. Engelmann and Mr. Shaw, the library has grown to the point where it contains more than 300,000 items.

The rare books are housed in two environmentally controlled rooms. There are some 1,000 volumes on botany, medicine, horticulture, natural history, travel and exploration published before the mid-18th century. Included in these works are many illustrated herbals, some of which were hand colored.

It is to such rare and fragile books that the Garden's expert conservators turn their skills.

Morton Deutsch, a member of the Garden library staff, completes blind tooling operation on a newly-bound volume. Leather is bound to book corners and spine for protection.



Backing press, part of the library's collection of binding equipment. The book is placed into the press to force "signatures" – book sections – into the back of the binding.

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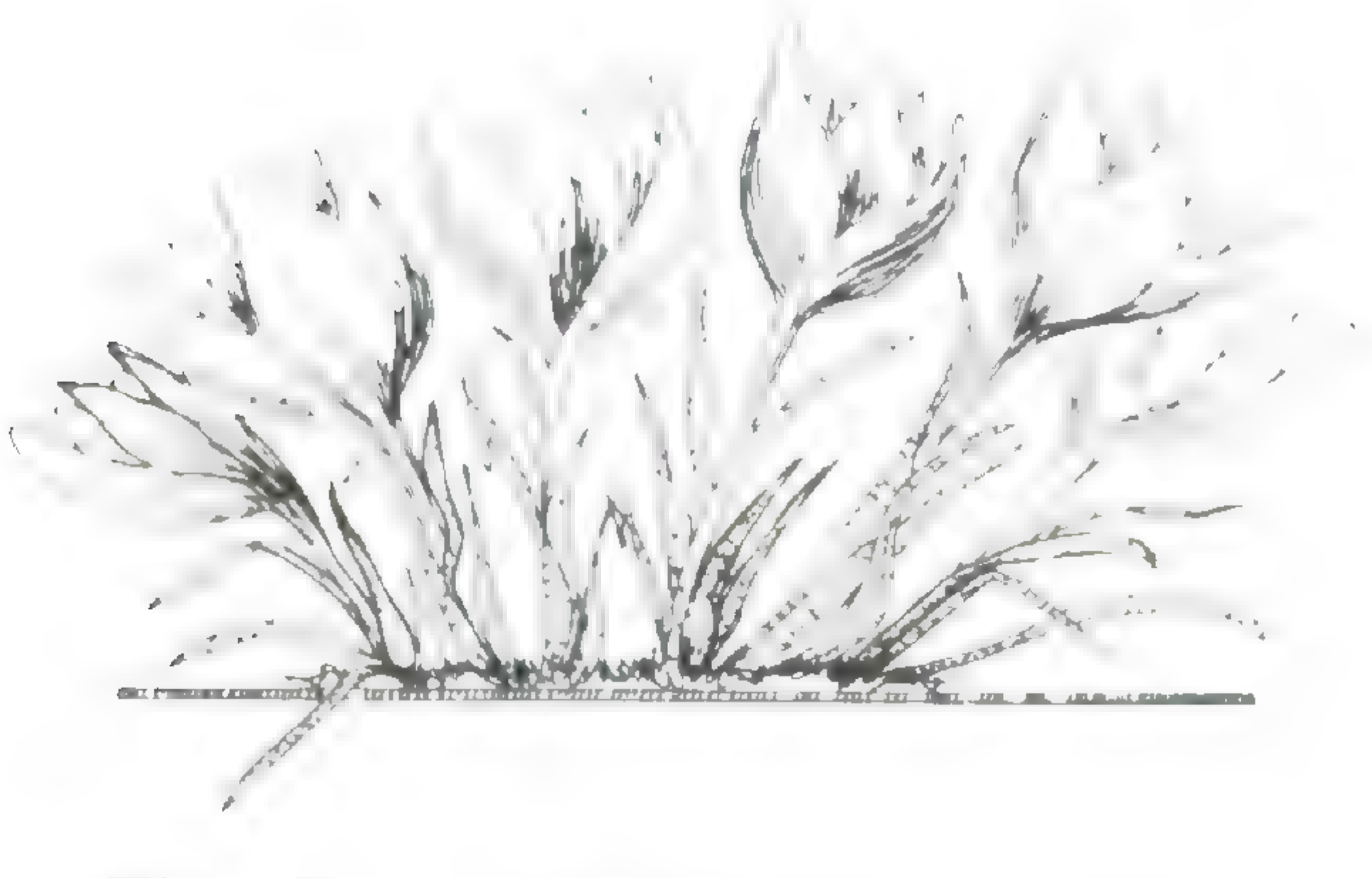
Director

Fall Workshop Set For Nov. 3-4



The Fall Workshop will focus on window plants this year. The dates are November 3 and 4 in the John S. Lehmann Building.

There will be displays, lectures, demonstrations, slide shows and several films. Special tours of the Japanese Garden, library and herbarium will be featured as well. Answermen will be on hand to answer questions, diagnose house plant ills and prescribe treatment.

Some of the areas to be covered include: gardening under lights, holiday plant care, solar greenhouses, propagation, orchids, African violets, cacti and bulb forcing.

Free tram service will be available from the Visitors Entrance to the John S. Lehmann Building. This is an excellent opportunity to gather a wealth of information on all phases of indoor plants. Mark your calendar for this special offering at the Garden.

Comment—

Dr. Peter H. Raven.

In the early 1960's, a group of volunteers called the Women's Association agreed to help raise money for the restoration of Tower Grove House. One of the things the Women's Association did was to open a small gift shop in the House. The profits from the shop were used for the restoration and for the Garden's program activities.

The response from members was enthusiastic, and the shop moved to larger quarters at the Gate in 1965. An addition doubling the size of the shop was constructed in 1971.

The success of the shop is related, I believe, to three operating principles:

1) Prices are modest because expenses are low. There is only one paid employee, and volunteers do much of the work.
2) The shop features gifts reflecting the Garden's educational, horticultural, and program interests.
3) The shop carries items representing good value and good quality rather than just "souvenirs".

The Gate Shop will hold a special Christmas Preview Sale on November 7 and 8 from 10:00 a.m. until 8:00 p.m. To encourage you to do your Christmas shopping at the Garden, the Members discount will be increased from 10 percent to 15 percent for the two days of the sale.

We congratulate the Gate Shop volunteers for their ongoing contribution to the Garden. And we wish them every success for the future and the upcoming holiday season.

Peter H. Raven

Letter From Nicaragua

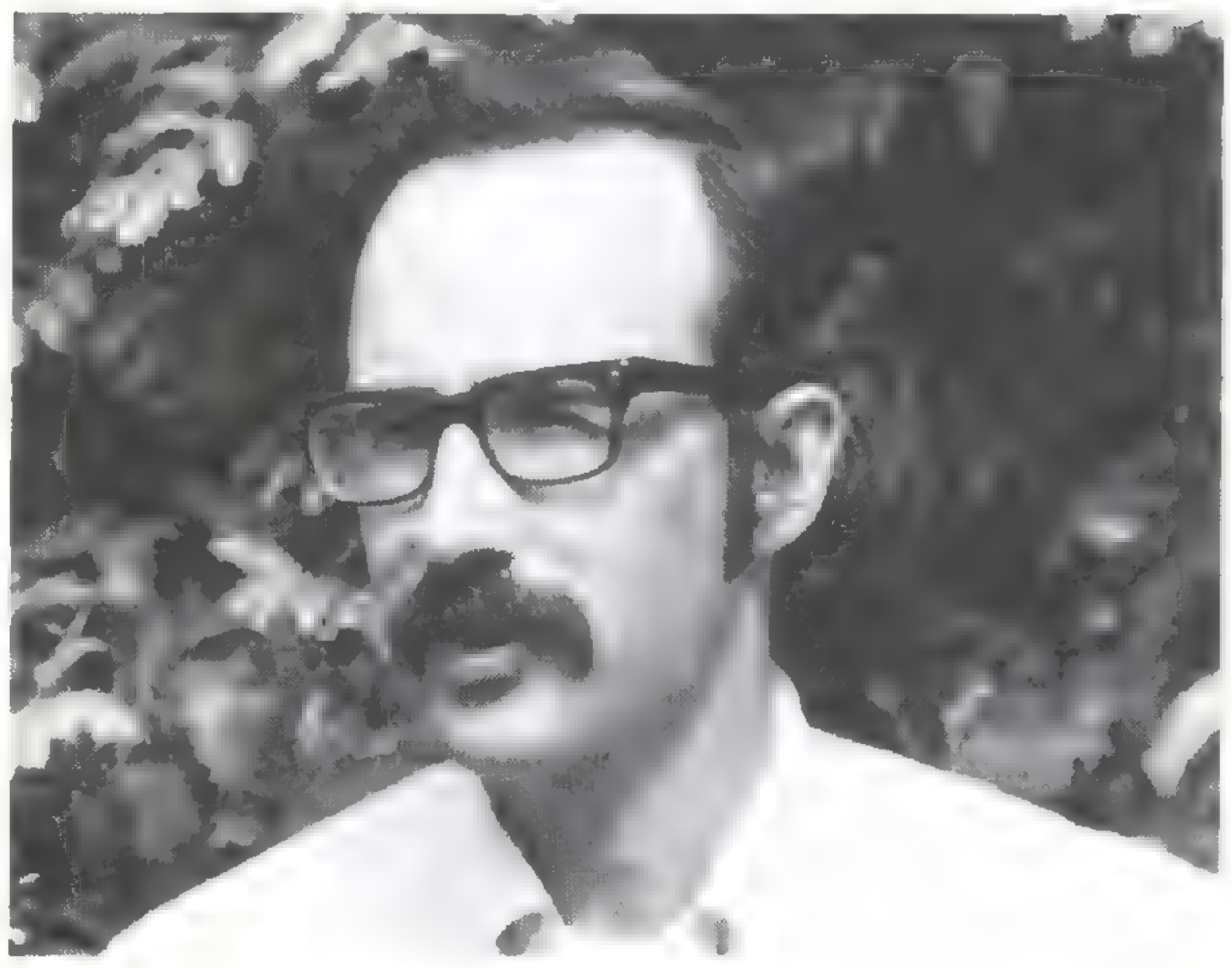
My exploratory trip to Nicaragua last week reinforced my expectations — the situation is uncertain. No one knows what the political future of this country will be.

I returned to Managua by air and spent two days talking to as many people as possible. The following remarks are a distillation of my conversations and will give you some idea of the current situation.

The forces that overthrew Somoza were composed of many factions, but can generally be sorted into two groups: the "moderates" who simply sought the end of the family dictatorship, and the "extremists" who have more precise and long range political goals. Neither group had been particularly successful until they joined forces a few months ago. The moderates enjoyed wide national and international support, including that of the U.S., and nominally control the new government, the "junta." The extremists were supported by practically no one but now nominally control the new military establishment and, as often noted, have the only real power at this time. The principal aim of the extremists is now to broaden their base of support by indoctrination, implemented by local committees and militia. The principal aim of the moderates seems to be to bring some degree of prosperity to the country by means of international reconstruction aid and the distribution of Somoza family holdings, more than 50 percent of the national economy.

I have it on good faith that Castro told the new government that his biggest mistake was alienating the affluent democracies and that he will give them no help if they do the same, that is to say, Cuba is exerting a distinctly moderate influence on the new government. It will probably be years before the two groups sort themselves out, and one hopes of course that the moderates will prevail, but it seems unlikely that there will be strongly anti-U.S. actions in the near future.

My previous Nicaraguan residence and visa are not recognized, at least according to the consulate in San José, Costa Rica, but I had no difficulty getting a tourist visa. I was told in San José that a long-term visa and residence could be arranged only in Managua, but in Managua I was told that the office of Migración had not yet been reorganized and that I would have to wait. At the Managua airport Migración and Aduana are currently operated by Costa Ricans and there were no special difficulties, although I was the only American of about 30 people getting off at Managua. I should say that the American consulate in San José told me not to go.


Dr. W. Douglas Stevens, the Garden's B.A. Krukoff Curator of Central American Botany.

On arriving in Managua early Sunday morning I was surprised to see a great activity in cleaning fields and roadsides and repairing damaged streets. At the herbarium I found Mauricio pressing plants and his girl friend typing labels; both are Sandinistas and it seems that at least temporarily everyone is supposed to work on Sundays too. The work I had left for Mauricio was finished and he had decided that it was time to start collecting again. The vehicles were as I left them. The truck is not in working order but the jeep was stolen twice by local militia needing transportation. The taking of the jeep was unauthorized and Mauricio reported to his commander and both times it was found and returned, once from Managua and once from Tipitapa. It seems that the routine police activities are already handled better now than in the past.

There is an overwhelming urgency among the moderates to get back to work and make something positive of the revolution. I assured everyone that the project was still completely active and that I should be working in Nicaragua as soon as it was feasible to travel in the countryside. It would be politically wise for me to be back in Nicaragua soon, even before it is particularly efficient in terms of collecting, but after going to so much effort to set things up in Costa Rica I also feel obliged to work here for a while, probably for a couple of weeks to a month more.

The Herbario Nacional de Nicaragua now has about 2500 identified, mounted, accessioned specimens inserted in genus folders and organized by family. The last two steps took place in my absence. The timing of this is fortunate because we now have a concrete example of what we are doing if there is a need to justify the project.

So — I'm happy to report that the Flora of Nicaragua project has survived the upheaval.

Sincerely,
Warren Douglas Stevens
B. A. Kurkoff Curator of
Central American Botany

Solar Greenhouse Organization Formed

A new non-profit organization called the Solar Greenhouse Association has been formed recently for the purpose of involving individuals in a practical application of solar energy. People who have long felt that they could not afford having a greenhouse attached to their homes may now find that building and maintaining one can be well within reach. The Solar Greenhouse Association, with headquarters in Webster Groves, is forming solar greenhouse clubs and offering an educational program geared to helping members design, construct, and maintain a quality solar greenhouse suited to individual or family needs. The club concept of solar education encourages people to swap skills and pool resources in an old fashioned "barn-raising" style.

Membership in the Association includes 12 monthly study guides which form a Solar Greenhouse Manual for the Midwest, a local newsletter, a subscription to a nationally circulated solar greenhouse journal, a leadership training program, and guidance in greenhouse construction. Club dues are $50 per family the first year. Garden members are given a discount. Persons interested in obtaining information or joining the Association should call I. M. Pederson at 962-4176 or 962-2505.

Coordinators of the program and authors of the new solar greenhouse manual are Arthur Pederson, solar design engineer, and Kenneth Peck of the Garden staff.

Shaw Committee Established

Harry E. Wuertenbaecher, Jr.

A new committee has been formed chaired by Harry E. Wuertenbaecher, Jr. Named for the founder of the Garden, Henry Shaw, this dedicated group of people is commited to making the legacy of Shaw endure.

The vision of a garden "for the public" and "easily accessible" has been made possible through his legacy and the generosity of people who care. However, additional funding is needed and through the leadership of this committee funding is sought.

Serving on this committee are:

Mr. Harry E. Wuertenbaecher, Jr., Chairman
Mrs. J. B. Bushyhead, Jr.
Mr. Jules D. Campbell
Mr. Richard Collins
Mr. Thomas R. Collins, Jr.
Mr. Parker B. Condie
Mrs. Dwight W. Coultas
Mrs. John L. Davidson, Jr.
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Dr. Thomas S. Hall
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Mrs. Shadrach F. Morris, Jr.
Mr. William R. Orthwein, Jr.
Mrs. Rudyard K. Rapp
Mrs. Lucianna Ross
Mr. Joseph F. Ruwich
Mr. Daniel L. Schlafly
Mr. Warren M. Shapleigh
Mr. Tom K. Smith, Jr.
Mr. C. C. Johnson Spink
Mrs. C. F. P. Steuck
Mrs. Robert P. Tschudy
Mrs. Bruce R. Yoder

Calendar of Events

November 3-4
House Plant Workshop
10:00 a.m.-5:00 p.m.
John S. Lehmann Building

November 3-25
Tropical Plants for the St. Louis Home
10:00 a.m.-4:30 p.m.
Climatron

November 5-December 14
God Created, Linnaeus Arranged
9:00 a.m.-5:00 p.m., Monday-Friday
John S. Lehmann Building

November 7-8
Garden Gate Shop Christmas Preview
10:00 a.m.-8:00 p.m.
Visitors Entrance

November 25, December 2-9-16
Strolling Carolers
Garden grounds

December 1-8-15-22
Christmas Decorations Workshops
1:30-3:00 p.m.
Plant Shop

December 4-27
(except Christmas Day)
Victorian Christmas Exhibit
10:00 a.m.-4:30 p.m.
Tower Grove House

Mrs. Walter Stern, past president of the Executive Board of the Members, and Edward Bydalek, designer, unveil Members' Graphic destined for display in the new Visitor Center.

Members' Graphic Unveiled For Visitor Center

The Members' Graphic was unveiled by Mrs. Walter Stern, past president of the Executive Board of the Members, and Edward Bydalek, designer, at a ceremony on Thursday afternoon, September 27, 1979.

The graphic contains the signatures of all the donors to the Education Laboratory Workroom in the proposed Visitor Center who donated $25.00 or more. Constructed of three plexiglass panels, this handsome graphic is now on display in the John S. Lehmann Building. Members who gave more than $250 may call the Members' Office to obtain their personal copies.

The MISSOURI BOTANICAL GARDEN BULLETIN is published six times each year, in January, March, May, July, September and November by the Missouri Botanical Garden, P.O. Box 299, St. Louis, Mo. 63166. Second class postage paid at St. Louis, Mo. $5.00 per year. $6.00 foreign

Dr. Raven Is Recipient Of Willdenow Medal

Carl Ludwig Willdenow
1765 - 1812
Bronze-Nachbildung

The Willdenow medal, presented to Dr. Peter H. Raven in recognition of the Garden's assistance in rebuilding the Berlin herbarium.

Dr. Peter H. Raven, Garden director, is the recipient of the Willdenow medal, which was presented in Berlin on September 10, 1979 in recognition of the assistance of the Missouri Botanical Garden in the rebuilding of the Berlin herbarium.

This herbarium had more than four million specimens in 1943. However, military action in March of that year destroyed all of that number except for about half a million that were on loan to other institutions. Through the cooperative efforts of similar institutions throughout the world the collection has now grown to two million specimens. The largest herbarium in the world, Kew in England, has five million specimens while the Garden has more than three million.

Carl Ludwig Willdenow, for whom the medal was named, was a German botanist who in the late 1700's maintained his own herbarium. The collection was later acquired by Berlin. This herbarium was the largest personal collection in the world and is now in the Berlin Botanical Garden collection. Willdenow was also director there from 1801 until his death in 1812.

The medal was created for the tercentenary of the Garden and Dr. Raven was one of the first recipients of this distinguished award.

Pring Garden Dedicated In Memory Of George and Isabelle Pring

The Pring Garden in the Japanese Garden was dedicated in memory of George and Isabelle Pring on October 17, 1979. The ceremony was attended by family and friends.

The special garden, designed by Koichi Kawana, is situated in one of the favorite spots of the Prings. Featured are cascading plants against a stone wall, chrysanthemums against a bamboo fence, a large dry garden as well as other plant material.

George Pring was a member of the Garden staff for 57 years. He was born in 1885 in Devonshire and trained at Kew. When he came to this country he joined the staff as foreman of the orchid department in 1906. His life was devoted to orchids — he judged them, wrote about them and collected them. Mr. Pring developed water lilies as well, a subject he studied thoroughly and for which he is probably best known.

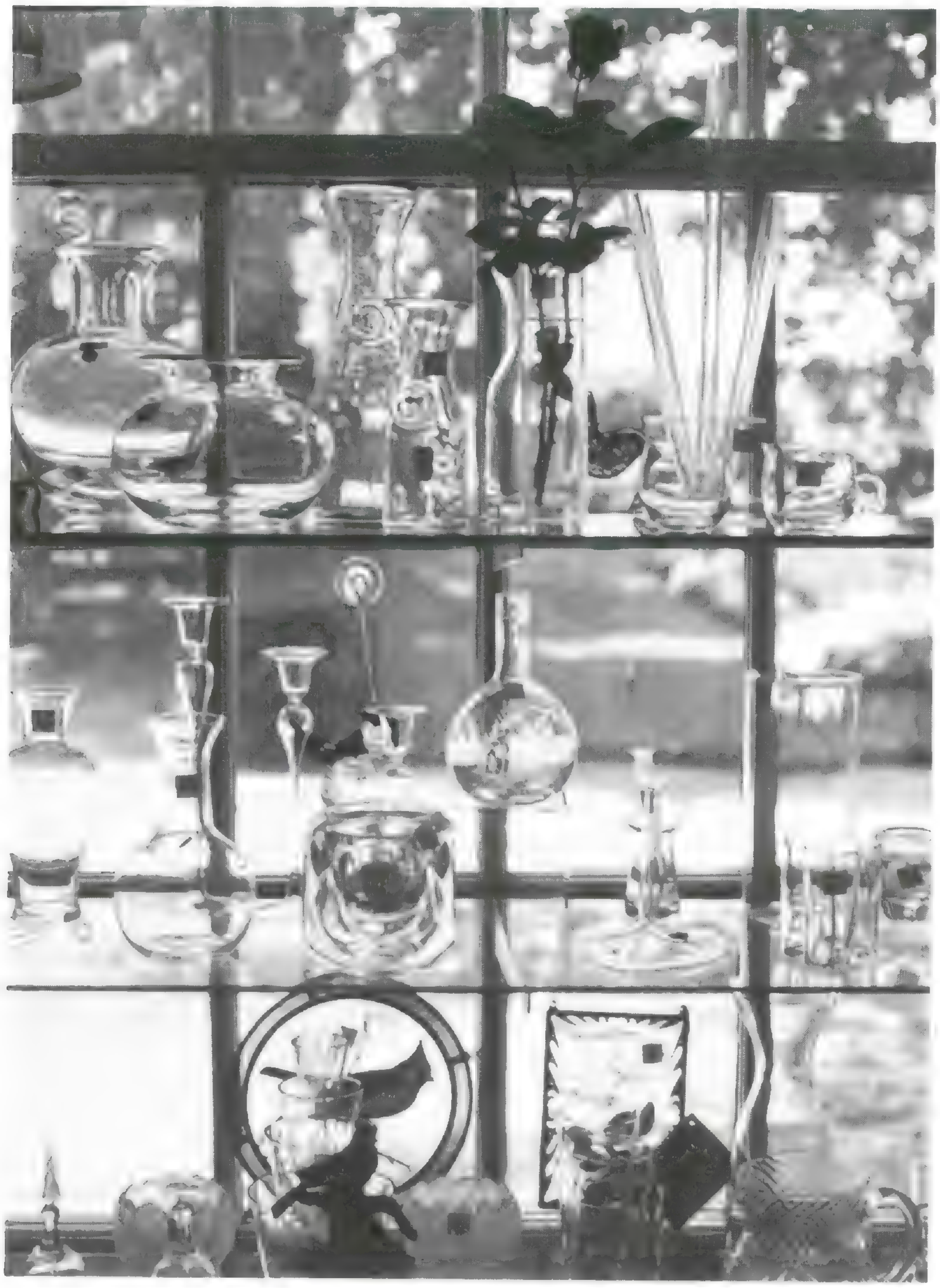
Mr. Pring met his wife on a Garden trip to England in 1910. The Pring dinner table always expanded to include Garden visitors. In addition, Mrs. Pring was responsible for the establishment of the volunteer guide program in Tower Grove House.

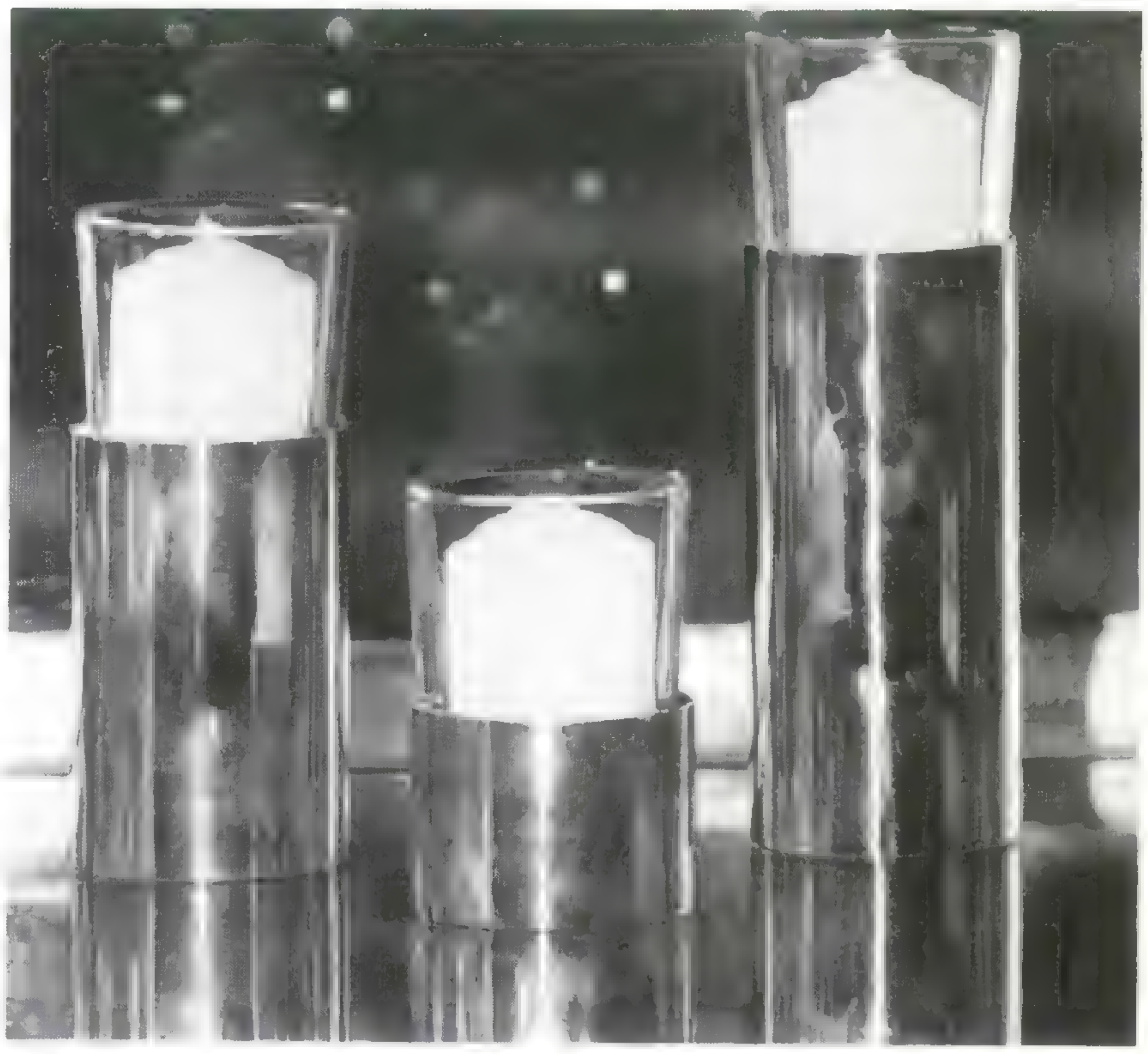
In 1928, Mr. Pring was appointed Superintendent of the Garden, a position in which he served until his retirement in December of 1962. He and Mrs. Pring remained in the St. Louis area until her death in 1969. Mr. Pring moved east to live with his daughter.

The lovely new garden is a fitting memorial to two people so long devoted to service at the Garden.

George Pring, former Garden superintendent, works with water lilies – one of his most consuming interests.

The Garden At Yuletide: A





GLASS AND GLITTER – Among Garden Gate Shop selections chosen for the holiday shopping season are, upper left, decorative glassware in a variety of forms; above, metal and glass candleholders; and, right, graceful, all-glass candlesticks.

Make this holiday season special by enjoying the Garden and simplifying your shopping.

Simplify your shopping this year by taking advantage of the special offerings in the Garden Gate and Plant Shops.

The Garden Gate Shop will offer 15 percent off on all purchases made on November 7 and 8. The collection of gifts for home and garden is extensive. Don't forget the large selection of books for that special person on your list. Free gift wrapping will be provided and, for a nominal fee, delivery can be arranged. Master Charge and Visa are accepted.

The Plant Shop has an unusual assortment of tropical plants for the home or office. Your coupon, mailed separately, entitles you to a 20 percent discount at the shop from December 1-24. If you visit the Plant Shop on a Saturday in December, you can also learn how to make your own Christmas decorations. Workshops will be conducted each Saturday.

Sunday afternoons will be highlighted by strolling carolers. The Greenery, the Garden restaurant, will feature special refreshments for the holiday season.

Tower Grove House will take on a special charm when it is decked out in all of its Victorian splendor for the holidays. The house will open decorated on December 4.

Share the Garden with a friend by giving a gift membership. A six-inch multi-stemmed poinsettia will be given to each recipient of a gift membership. These gifts may be charged to Master Charge by calling the Members' Office, 772-7600.

ft For All

LIVING GIFTS – Gift selections at the Plant Shop will include a variety of green, living gifts, such as staghorn fern, upper left; button fern, lower left; and Dracaena deremensis *Warneckei, upper right. Special holiday workshops, including wreath-making, lower right, also will be part of the Garden's holiday programming.*

News Notes

The Garden has received a $25,000 grant from the Institute of Museum Services. In acknowledgement of this grant, Dr. Peter H. Raven announced:

"A portion of our general operating funds for this fiscal year has been made available through a grant from the Institute of Museum Services, a Federal agency in the Department of Health, Education and Welfare, which offers operating and program support to the nation's museums."

* * *

A special Linnaean exhibit sponsored by the Swedish Information Service will be displayed November 5 - December 14 in the John S. Lehmann Building. In addition, on November 13 at 8:00 p.m., the film "I, Prince of Botany" will be shown. This special showing is open to the public.

* * *

The Holly Society of America held its annual meeting in St. Louis in late October. Participants spent a day touring the Garden and heard a presentation by Dr. Peter H. Raven, Garden director, and John Elsley, curator of hardy plants.

* * *

When snow begins to fly, thoughts turn to winter sports activities. If you are into cross country skiing, the Arboretum in Gray Summit is a great place to go. There are 10 miles of trails transecting field and forests. These diverse landscapes provide havens for deer, wild turkey, fox and rabbit.

Shaw Arboretum is open daily 8:00 a.m. to 5:00 p.m. Groups interested in renting the Trail House should do so in advance. There is a Franklin stove in the meeting room which will provide warmth and cheer. A staff naturalist can provide an interpretive program for groups wishing such a service.

For further information, please call 772-7600, extension 81.

* * *

A film on the history and development of the Garden entitled "Heritage for All" is now available for loan. This documentary has been written and produced professionally and narrates the history and legacy of Shaw's Garden in beautiful prose and lovely vision.

To anyone interested in the Garden or for those who wish to know more, this film is certain to be a delightful addition to any program.

Please call the Development Office, 772-7600, for details regarding the film.

* * *

Dr. Charles A. Huckins, Chairman of Indoor Horticulture, resigned in mid-August to accept the directorship of the Desert Botanical Garden in Phoenix.

Since August, 1974 Dr. Huckins served as curator of tropical plants and was instrumental in the redesign and renovation of the Mediterranean House.

He expanded the public exhibits in the Climatron, Desert and Mediterranean Houses. He was instrumental in utilizing the collections for educational purposes, for example the "Plants of the Bible", "Marigold" and "New Year of Trees" exhibits.

* * *

The festive Harvest Show was held under the tent in front of the Climatron. Though the accent was on chrysanthemums in a rainbow spectrum of colors, there were other features as well.

On exhibit was an 1883 horse-drawn walking plow on loan from the National Park Service. Pumpkins, gourds, corn, wheat, oats and hay symbolizing the bounty of harvest time surrounded the plow.

A giant urn contained a dried arrangement of lotus seed pods, ornamental grasses and fall foliage.

The floral display in the tent was accented by extensive plantings of hardy mums in the beds surrounding the tent and along the walkways from the Visitors Entrance.

The show ran from October 5 to 28.

300 Attend Annual Systematics Symposium

For the 26th year, the Garden sponsored its Annual Systematics Symposium, a series of meetings held to emphasize new developments in taxonomy and evolution and to foster communication among biologists. As for the last 25 years, the National Science Foundation provided financial support.

A first in the history of these Symposia is that this year's topic dealt with a single family of plants, namely, the grasses (Gramineae) rather than a broad topic with data coming from a wide range of plant families. Because it is one of the largest plant families, it is the most widely distributed of all families with an ecological dominance second to none, and because of its unparalleled history of importance to man as a source of food, forage for his animals, construction materials, industrial products, etc., it was an especially appropriate choice for this Symposium.

Meeting October 19-20 in the John S. Lehmann Building, the Symposium was attended by nearly 300 scientists and graduate students. Moderator of the Symposium was Dr. R. W. Pohl, prominent agrostologist from Iowa State University. Speakers and their topics were Dr. W. D. Clayton, Kew Botanic Gardens, England, evolution and distribution of grasses; Dr. H. E. Connor, DSIR, Christchurch, New Zealand, evolution of reproductive systems in the Gramineae; Dr. G. Davidse, Missouri Botanical Garden, cytology of grasses; Dr. F. W. Gould, Texas A&M University, evolution in the genus *Bouteloua* (grama grasses); Dr. H. H. Iltis, University of Wisconsin, evolution of corn; Dr. T. R. Soderstrom, Smithsonian Institution, patterns of evolution in the bamboos; and Dr. G. L. Stebbins, University of California, Davis, coevolution of North American grasses and mammals. The evening talk was presented by Dr. J. M. J. de Wet, University of Illinois, who traced the importance of grasses in the development of the cultural history of man.

Gene Jarvis: A Very Special Volunteer

Gene Jarvis is a double V.I.V.: a very important volunteer and a very interested volunteer. Certainly all of the volunteers at the Garden are important — the Garden could probably not go on without them — but as a volunteer in Display Greenhouses since 1974, Gene has not only been helping at the Garden, she has been taking full care of the begonias and gesneriads in the Climatron. Bill Wagner, superintendant of display greenhouses, has described Gene as "our leading volunteer with the most amount of hours volunteered." Gene, very energetic and eager to get back to her begonias, simply says she enjoys her work because of the "satisfaction" she derives from it.

Gene says she has been interested in plants for quite a while, not since childhood, but before "the big plant craze." She has her own greenhouse at home which includes a collection of cacti and succulents that Gene finds "fascinating" because "there are so

(Continued on Page 9)

Gene Jarvis

(continued from page 8)

many varieties." She especially likes these plants but she can't name any favorites; "you grow to like them all." Begonias are of course a special interest to Gene, particularly now: "I've taken care of area five (begonias) for years and now we're redoing it and that's exciting to be a part of." Gene is also fond of orchids and particularly enjoys setting up for the orchid shows held on the patio in the Climatron; "they are really beautiful." When asked about the amount of time she gives to the Garden Gene replies, "I wish I had more time to give." She intends to continue her work at the Garden as long as she can, which is good news to the Garden.

Gene's work in the Climatron, along with her assistance in horticultural workshops, special events and setting up displays, is greatly appreciated by the Garden. Gene Jarvis deserves to be commended.

In Memoriam: Leicester B. Faust

Leicester B. Faust, longtime friend of the Garden, died August 31, 1979.

Mr. Faust became a member of the Board of Trustees in May 1954 and served as vice president from 1959-1966. He was named an honorary trustee on January 17, 1973.

Financial support provided by Mr. and Mrs. Faust made possible the construction of the lily pools east of the Climatron in 1964, and one of the greenhouses completed in 1968. This greenhouse is dedicated to Anna Busch Faust, Mr. Faust's mother. The Fausts contributed generously on a number of other occasions, including the construction of the Climatron.

Leicester Faust, a grandson of Adolphus Busch, was born in St. Louis in 1897. He started working in the grain department of Anheuser-Busch in 1935 and served as its vice president from 1947 - 1952. He served as president of the Merchants Exchange of St. Louis in 1945.

Mr. Faust presented several important works of art to the St. Louis Art Museum and to Washington University. He also served on the boards of the St. Louis Symphony and of the St. Louis Priory School and had been active in the St. Louis Chapter of the American Red Cross. He also served as president of Industrial Aid for the Blind.

In 1968 Mr. and Mrs. Faust presented their country home, the former estate of Frederick Bates, the second governor of Missouri, to the people of St. Louis County. The new park was named "Faust County Park."

Dr. Steyermark Receives Shaw Medal

Dr. Julian Steyermark, recipient of the Henry Shaw Medal.

The Henry Shaw medal has been awarded to Julian Steyermark. It was only the third time the award was made in its 45-year history.

The recipient is author of the "Flora of Missouri," a massive 1,728 page volume. The study took more than 30 years and more than 200,000 numbered specimens from Missouri were collected — mainly by Steyermark himself!

The book provides a general key for identification of plants. After the family is reached from the key, more detail is given. The scientific name, most widely used common name, flowering dates, and a map indicating geographical range follow.

Dr. Steyermark's accomplishments go far beyond this monumental work, however. He helped organize the Missouri Chapter of the Nature Conservancy and made the Garden's first trip to Panama which probably launched our current flora project there.

In addition to his tenure on the staff of the Garden, he spent a number of years at the Field Museum in Chicago. In 1959 he went to Venezuela where he has been working and collecting ever since. Dr. Steyermark delivered several lectures while at the Garden.

STATEMENT OF OWNERSHIP MANAGEMENT AND CIRCULATION (ACT OF AUGUST 12, 1970 SECTION 3685, TITLE 39, UNITED STATES CODE.)

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2. Date of Filing September 20, 1979
3. Frequency of issues: 6 issues per year — bi-monthly
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6. Names and addresses of publisher and editor are. Publisher, Missouri Botanical Garden, P.O. Box 299, St. Louis, Missouri 63166, Editor, Barbara B. Pesch
7. Owner Missouri Botanical Garden, P.O. Box 299, St. Louis, Missouri 63166
8. Known bondholders, mortgages, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities: None
9. The purpose, function and nonprofit status of this organization and the exempt status for Federal income tax purposes has not changed during preceding 12 months. Authorized to mail at special rates (Section 132.122, PSM)
10. Extent and nature of circulation

		Average no. copies each issue during preceding 12 months	Actual no. copies of single issue published nearest to filing date
A	Total no. copies printed (Net Press Run)	12,500	12,600
B	Paid Circulation		
	1. Sales through dealers and carriers, street vendors and counter sales	none	none
	2. Mail subscriptions	11,500	11,630
C	Total paid circulation	11,500	11,630
D	Free distribution by mail carrier or other means samples, complimentary and other free copies	none	none
E.	Total distribution	11,500	11,630
F.	Copies not distributed		
	1. Office use, left-over unaccounted spoiled after printing	1,000	970
	2. Returns from news agents	none	none
G.	Total (Sum of E, F1 and 2 — should equal net press run shown in A)	12,500	12,600

I certify that the statement made by me above is correct and complete

(Signed) Barbara B. Pesch Editor
Publications Department

Gardening in St. Louis

As days grow shorter and shorter and temperatures dip lower, gardening tasks begin to grow fewer. Thoughts of the past several winters spur us on to provide winter protection wherever feasible.

Maintenance chores should be continued. Keep leaves raked off the lawn and beds and add them to the compost pile. Since rainfall has been so sparse, continue to soak newly planted trees and shrubs. Those that are not well watered will be more susceptible to winter kill.

Mulch plants if that has not been done previously. Apply to the depth of four to six inches as far out as the drip line — further on new plantings. Erect a burlap barrier around plants that are susceptible to winter burn. Wrap burlap around stakes securely leaving a six-inch space between the bottom of the burlap and the ground.

Check all stakes and wires to be certain that they are secure. Check to be certain that wires are not too tight as well.

Holiday Time

This is a good time of year to remember gardening friends with gifts of magazines, books and plants — even a gift certificate from your favorite nursery or garden center. Check all the new books for yourself as well. Winter evenings are an ideal time to curl up with that book in front of the fire. Make some new plans for your garden in the spring.

Select your Christmas tree early and take time in the selection. Be certain the tree is evenly branched and the trunk is straight.

After purchasing your tree, cut an inch or so off of the bottom end and place the tree in a bucket of water in a cool place. When ready to place the tree in the house, put it in a stand that contains water for it will stay fresher. Keep stand filled with water. Place the tree away from heat ducts and the fireplace. Be certain there are no frayed wires in the lights before decorating the tree.

Fall Bulbs

Fall bulbs should be in the ground by now. If not plant as quickly as possible. Bulbs need a chance to root in the fall in order to flower well next spring. Bulbs for forcing should be potted to provide spots of cheer during the winter.

House Plant and Greenhouse Care

Watering should be done less frequently as days grow shorter and growth slows. More plants are lost by overwatering than anything else. Fertilize only actively flowering plants. Keep inspecting for signs of insects or disease and treat immediately.

Temperatures in home greenhouses can fluctuate widely on warm sunny days. When days are mild, provide good ventilation. Reduce night temperatures to save on heating bills. The installation of plastic will also reduce heating costs. This winter might be a good time to do this.

Winterizing Roses

Do not prune roses until next spring though long canes can be cut back. The best protection is to hill up each bush with six to eight inches of good top soil mixed with equal parts of organic matter or compost. Do not dig up soil from around the plant to accomplish this. Later add two to three inches of wood chips.

Odds and Ends

Some fertilizing can still be done in November. Work into vegetable garden and leave soil rough dug — the action of freezing and thawing, wind, rain and snow will break up the soil.

Stock feeders for the birds. Suet and water should be supplied as well. Not only do you provide food for your feathered friends, but the activities of these little creatures can't help but entertain and delight the beholder.

Enjoy evenings before a nice fire.

—Barbara B. Pesch

Some gardens are dry
Sitting in the sun alone
Wishing they were wet.

Where Have All The Flowers Gone?

The following article is reprinted with the permission of Nature *magazine.*

The savage destruction of the Brazilian rain forests has been dictated, to a large extent, by economic pressures over which the country's government can exercise little control. Yet this rapidly dwindling heritage of exotic plants and animals kindled the imagination of early explorers and continues to contribute to our understanding of our natural environment. In Brazil today the cultural and economic influence of the West is very apparent, and so it is strange to find little native interest in natural history reflected on the shelves of the big bookshops of cities such as Rio de Janeiro, Brasilia and Belo Horizonte. Despite a good deal of enquiry the only books I could find dealing with Brazilian wildlife at all were translations of glossy foreign "coffee table" volumes.

Long searches through the second-hand markets uncovered only four more: a series published in Saö Paulo in the 1950s dealing with insects, birds and mammals; and a magnificent translation of an illustrated French book on Amazonian primates, published at the turn of the century — whose value was, unfortunately, well appreciated by the dealer. The Brazilian flora suffer a similar neglect, even though, at certain times of the year, one would be well advised to take some sort of field guide along when visiting the local fruit and vegetable markets.

Being able to name and classify species of plant and animal is an essential cornerstone of biological science and education. Once these basic elements can be identified, and their interactions understood, one may begin to appreciate the fragility of eco-systems such as the tropical rain forest.

It is disturbing, therefore, to find that would-be medical students, when asked to give the names of all the animal species they knew, could list, on average, only half a dozen — invariably creatures of medical importance such as the mosquito, the cockroach and the 'barbeiro', the bug vector of Chagas disease. Although this survey carried out by Professor Angelo Machado of the Federal University of Minas Gerias, did not include questions on plant life, my own experiences suggested that here the situation is even worse. Indeed, one graduate biologist I spoke to was surprised to discover that natural selection occurs outside the animal kingdom!

Machado is a well respected morphologist and neuroanatomist, whose spare time pursuits include some most elegant studies on the ecology and taxomony of neo-tropical dragonflies. His wide interests include conservation — he is a founder member of one of the few environmental pressure groups in the country — and, more recently, an attempt to understand the lack of interest in wildlife which is apparent in the country's development of its natural resources. Brazil's politicians and administrators, he feels, are "frightened by nature", and so he has turned to studying the development of the concept of the "forest" in school children throughout the country.

This survey is still in its early stages, but Machado has already found that the child's concept of the forest, and its association with fear, begins to form early in life. It seems to be based on nursery rhymes and children's stories imported from Europe and North America, which emphasize the dangers of going into the woods.

In the younger child this ignorance can be easily counteracted. Drawings and paintings of the "forest" made by 7-10 year olds commonly included aeroplanes spraying the undergrowth with bullets and napalm; but after the same children had been taken by Machado on a trip to the real forest these were replaced by birds and butterflies, and the children paid far more artistic attention to leaf forms and flowers.

At the present rate of development Brazil's forests may only survive for another 30 years, but if Machado's children can be so easily convinced of its value there is some hope that this new generation may allow it to stand for longer. The final decision may perhaps lie with the teachers rather than the politicians.

— David Bousfield

Members' Trips

The Baja itinerary sounds exciting! There will be whale viewing, forest exploration and beachcombing. Several old missions will be visited.

Ken Peck, Manager of Instructional Services, travelled to Baja this past summer and has personally visited all these areas and planned the trip. He will be the guide.

This is an unusual opportunity for members. Don't miss it — February is the month.

Several other trips have been planned. Williamsburg will be the destination in April and England with John Elsley in May.

For further information, please call the Members' Office, 772-7600.

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The Jerry Dudding Family

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Mr./Mrs. Raymond Epstein

In Honor of Dr. and Mrs. Martin Davis' 40th Anniversary
Mrs. R. G. Knaus

In Honor of Mr. Herschel B. Engel's Special Birthday
Mr./Mrs. Meyer Levy

In Honor of Ezzy's Arrival
Dorothy and Sam Rosenbloom

In Honor of Mr. and Mrs. Al Friedman's Marriage
Sam and Dorothy Rosenbloom

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Mrs. J. A. Jacobs

In Honor of Judge and Mrs. Floyd McBride's 25th Anniversary
Ella Tappmeyer

In Honor of Drs. Parry and Lillian Schippers' 35th Anniversary
June E. McCarthy

In Honor of Mrs. Dorothy Smith's First Great Grandchild
Mr./Mrs. Sam Rosenbloom

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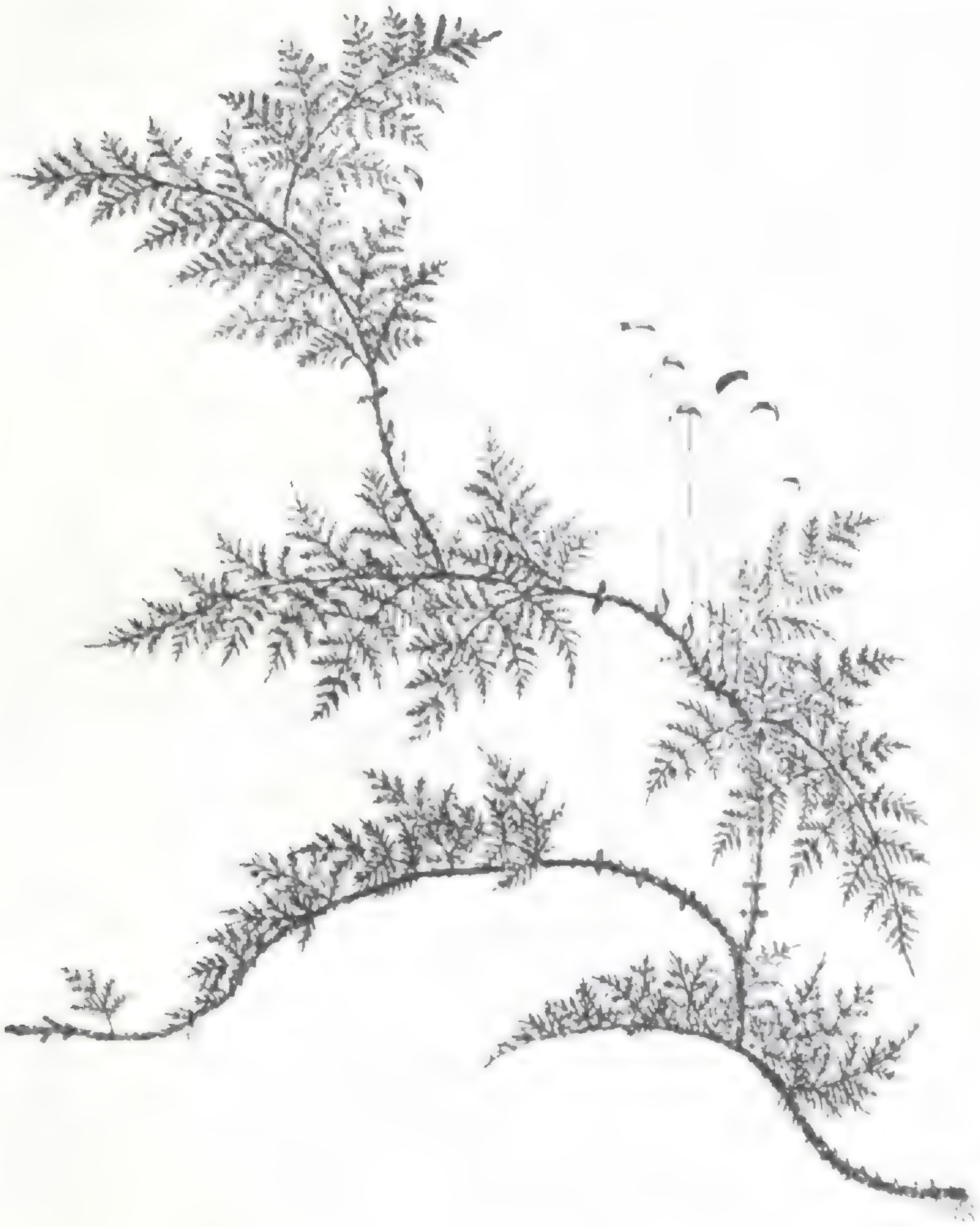
Botanical Illustration: An Age-old Art



Botanical artists developed techniques imitated by later illustrators. Here is an example of fine detail.

A new exhibit, "500 Years of Botanical Illustration", will open January 10 in the lobby of the John S. Lehmann Building from 9:00 a.m. to 5:00 p.m. Monday through Friday. The exhibit was assembled by Jim Reed, librarian, from the extensive Garden collection, and has been touring the midwestern states under the auspices of the Mid-America Arts Alliance.

From delicately illuminated 15th century manuscript pages to a bold contemporary lithograph based on the microscopic image of a pollen granule, the 72 images in this exhibit represent a variety of media and techniques in scientific artwork and floral design. The intricate detail of the drawings and engravings will be of interest to students of biology and art. The collection of prints dates from 512 A.D. up to the work of modern day living botanical artists.

The earliest print in the exhibit is by Dioscorides who was a Greek physician with the Roman armies. The work from which this illustration was reproduced is a compilation of medicinal and herbal lore. Its importance lies in the fact that it had profound influence on later botanical illustration.

The plant pictured, Asphodel, was planted near tombs by the ancient Greeks to serve as food for the dead in their journey through the afterlife. It also has some medicinal uses.

The illustration of a leek by Peter Schoeffer in 1485 is woodblock engraving that was hand-colored. It is reproduced from a German herbal. Schaeffer worked for Gutenberg, the inventor of moveable type.

The leek was held in high esteem since the days of the Roman empire. Emperor Nero is said to have eaten it to improve his singing voice. The Romans took it to England where it became the Welch national Emblem. It is best known today as an ingredient of vichysoisse.

The woodblock engravings of willow-herbs and loosestrife were done by John Gerard in 1597. The artist was an English surgeon who cultivated thousands of herbs including many of rarity. He was herbalist to King James I. It is quite possible that Shakespeare was a visitor to Gerard's garden.

(Continued on Page 3)

Lecture:
500 Years of Botanical Illustration
Jim Reed, Garden librarian

Date:
January 23, 1980

Place:
John S. Lehmann Building

Time:
10:30 a.m.

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Comment—

Dr. Peter H. Raven

Last summer we began to realize that the cost of the Garden's new Visitor Center would be higher than expected, largely because of inflation. Our expectation was confirmed when the contractors' bids were opened in September, and they totaled about $10.5 million for the Visitor Center, the new maintenance complex, and support facilities such as greenhouses. From gifts and other sources we have commitments totaling nearly $7 million, leaving us about $3.5 million short of what is needed to complete the project.

After considering the possible alternatives, the Trustees approved a plan to proceed by raising an additional $1.7 million in gifts and by deferring $1.8 million in construction costs by not completing parts of the building. The floral display hall, the shops, the restaurant, and other features will be completed at a later date when funding is available.

This may not be the happiest solution, but it is a practical one. The facilities this building will provide are necessary to serve the growing number of people who visit the Garden. The cost for the Visitor Center alone was increasing an estimated $75,000 a month because of inflation. By going ahead with the basic structure, we will be able to freeze most of the costs at the current level. We can use the auditorium and the entrance area, greatly improving visitor service and orientation, and we will finish other features in the building when it is possible to do so.

Peter H. Raven

Letter From Peru

Manu Park is remote — accessible only after a week's journey from Cuzco. Finding transport can also be a problem. Mine was solved by riding in the back of a produce truck which traversed the snow-capped Andean cordilleras. The road degenerates in Madre de Dios Department to a winding track that follows gravel river beds usually containing little water. A dugout canoe became my transport for several days of river travel through uninhabited tropical rain forest. The sky was my roof for nights spent by the river's edge. This region is uninhabited because it is the territory of several much-feared Indian tribes. These people have had almost no outside contact and live a warlike, nomadic way of life. Now, however, the Peruvian Ministry of Agriculture and its park service are interested in protecting this area and putting a buffer zone around it as well. It is a superb park!

Although the region's fauna and flora are incompletely known, many biologists consider Manu the most outstanding of all national parks. It contains more bird and plant species than any other site in the world. Wild animals abound, and many are quite tame.

Nearly pure virgin stands of gigantic Spanish cedars, valuable as timber, astound botanists because elsewhere these cedars are almost exterminated. Various new plant species have been discovered with the prospect of many more as work progresses.

Dr. Alwyn Gentry

I am working with several Peruvian botanists and some students on this project. Amazonian Peru is one of the most floristically diverse regions in the world. Therefore we are collecting specimens, studying plants to better know this area of the world. The Flora of Peru project is sponsored by the National Science Foundation. I am also completing a study of plant distribution and diversity patterns for the National Geographic Society.

My trip to Manu was certainly a highlight of my many trips to Peru.

Sincerely,
Alwyn Gentry

Dr. Gentry is an associate curator of the Garden's herbarium and director of the Flora of Peru project.

Zoo-Museum District Legislation Pending

Bills will be introduced in the 1980 legislative session by State Representative Russell Egan and State Senator John C. Scott to establish a Botanical Subdistrict in the Zoo-Museum Tax District. The purpose of the Botanical Subdistrict is to provide tax funding for the Garden's operations. If approved by the legislature, the Botanical Subdistrict must then be approved by a referendum in St. Louis City and County before it goes into effect.

The Garden's Trustees made the decision to seek tax support after review of the financial projections for the next ten years. Currently, about 3% of the Garden's budget is provided by state and local government, through the Missouri Arts Council and the Convention and Visitor's Bureau of Greater St. Louis. The additional revenue through the Zoo-Museum District would provide a stable base of annual support. Dr. Peter H. Raven anticipates that the tax district, if approved, could provide up to half the operational income needed in coming years. "With this support and with the continued aggressive approach to the private sector, the Garden will be able to maintain its services and its unique attractions such as the Climatron and the Japanese Garden."

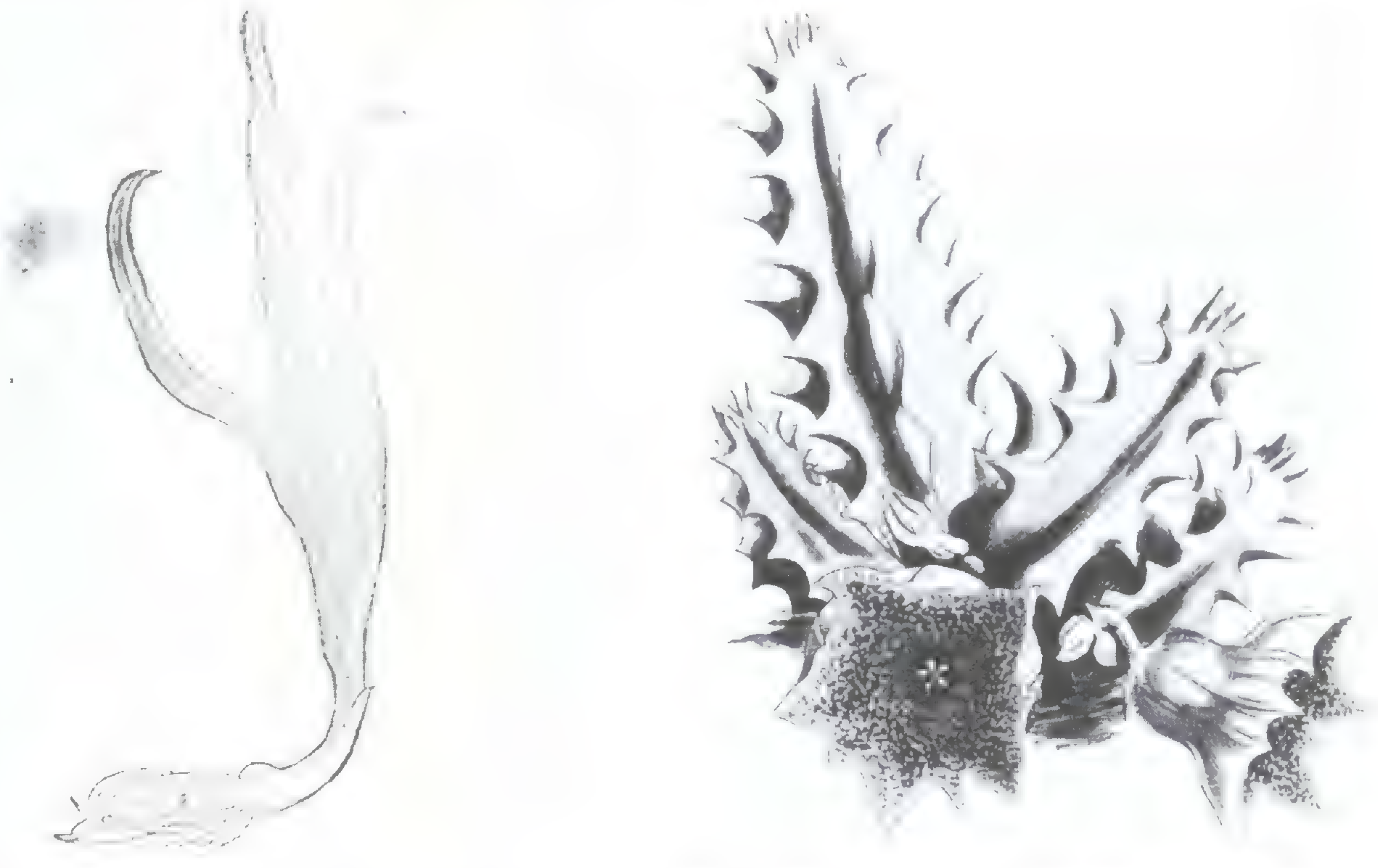
(Continued from Page 1)

Willow-herbs are members of the evening primrose family and are quite plentiful in England today.

Several illustrations are shown from the Curtis' Botanical Magazine. William Curtis undertook in February 1787 to illustrate and describe "the most ornamental foreign plants, cultivated in the Open Ground, the Greenhouse and Store." The magazine is now in its 182nd year averaging 10-11 color plates per issue.

The list of artists whose work has appeared in the *Botanical Magazine* reads like a who's who of the best botanical artists in Great Britain.

Mid-America Arts Alliance is a four-state partnership of the Kansas Arts Commission, the Missouri Arts Council, the Nebraska Arts Council and the State Arts Council of Oklahoma.



A drawing from an old herbal – a part of the Garden library's extensive collection. Contrasting styles illustrate some of the many techniques which will be displayed in the January exhibit.

Garden Visitors . . .
Governor Of Nagano Tours Teahouse

Mr. Jack Runyan, Mr. James McHugh, member of the Japan American Society, Mr. Rick Daley, Mr. Todoroki and Governor Nishizawa chat after visiting the teahouse.

The Garden hosted a delegation of dignitaries from Nagano Prefecture, Missouri's sister state in Japan late last fall. The delegation was led by Mr. Nishizawa, the Governor of Nagano.

The visit was of particular significance since Nagano province donated the teahouse in the Japanese Garden. The Governor, who has been in that post for 21 years, commissioned the gift. The teahouse was constructed in Japan, dismantled, shipped and reassembled by Japanese craftsmen here.

The Governor and Mrs. Nishizawa toured the teahouse. Also attending were Secretary of State James Kirkpatrick; James Butler, state director of consumer affairs; Carl Beckers, honorary Japanese consul general; Jack Runyan, director of the state department of agriculture; Representative Ed Sweeney; and Representative Russel Egan.

Volunteers: A Profile In Service

Anyone who visits the Plant Shop on a regular basis is familiar with the cheerful countenance of Desmond (Bob) Fraser. As a volunteer for almost three years at the Garden, he contributes more than 450 hours of service each year.

Bob retired from his position as an employee of the railroad and began his volunteer service here by performing clerical tasks in the Membership Office for Marie Cook. According to Marie, not only did he perform many tasks efficiently and quickly, but he also was "a joy to have around because he was always so cheerful."

After a year and a half Bob began to work in the Plant Shop. He works two days each week for six hours each day. I asked him about his volunteer efforts and why he picked the Garden. He replied, "I like people, I like the Garden and I like plants. My working at the Garden gives me a lot of pleasure."

It is the efforts and time of such volunteers that make the Garden the extraordinary place it is.

Desmond (Bob) Fraser: Plant Shop Volunteer

Garden volunteers contribute many hours in every area. The following letter is an example of many received in praise of the volunteers.

November 3, 1979

Dear Mr. Kohn,

Just last Sunday we spent the afternoon at the garden & were so fortunate as to spend it with you. We want you to know it was a joy for us to share those couple hours with you and learn so much about the gardens from you. We really appreciated your good humor and enthusiasm for this beautiful place. How fortunate we are to have "volunteers" such as you. Your factual sheet was so interesting – and your photographs too.

We were in St. Louis for our church's national assembly at the Convention Center. We are back home busy at work but will keep warm memories of your generosity to share yourself.

Love to you
Don and Corrine Slaughter

New Education Courses For Spring

Watch the mail for the Winter/Spring course brochure. There are many new additions. Since classes fill so quickly, please make your selections and enroll as soon as possible.

The following describes one of the special offerings: Herbs, Uses and Culture.

How do I grow my own herbs? How do I harvest them? How do I plan my herb garden? Does companion planting work? How important are herbs in medicine today? How can I keep house with herbs? These are among the basic questions which will be explored in the annual herb course which the St. Louis Herb Society will present in April 1980 at the Missouri Botanical Garden under the sponsorship of the Garden's educational department.

This year the course is structured for deeper coverage of the subjects offered. This is in response to opinions expressed in answers to a questionnaire distributed to those attending the 1979 course. In the past, an effort has been made to at least touch upon a broad range of herb interests; this year the focus will be concentrated upon the more basic areas of herb culture and herb uses.

Course teachers are all qualified herbers with a special interest in their assigned subjects. Mary Clair Wenger, incumbent Society president, believes that herbs can be appreciated fully only against the background of history. She will trace that history briefly. Virginia Schreiber, past president, honorary member and sole holder of the Society's "complete herber" award, will talk about a favorite subject, housekeeping with herbs in the twentieth century. Jeanne Montaldo, a past president, will discuss companion planting, which she practices, and in which she is a lay authority.

Joyce Driemeyer, past president of the Society and a professional in garden design, will advise on planning the small herb garden. Dr. Walter H. Lewis, professor of botany at Washington University and co-author with his wife, Memory P. F. Elvin-Lewis, of the authoritative "Medical Botany", will talk about the value of herbs in medicine. This is a subject he believes should be met directly. May Gamble, past president and an honorary member of the Society, will discuss how to get the most out of your herb garden.

The horticulture of herbs will be covered by Mary Holekamp, a past Society president, who will be assisted by Kerry Elgin, a past horticulture chairman. This area will include student-participation sessions which will yield a group of interesting and useful herbs for the student to take home. Plants for these sessions are being grown at the Garden under the direction of Carol Winkelmeyer, present horticulture chairman.

Many of the subjects will be illustrated with instructive slides. Potpourri, planting, propagating and potting will be demonstrated. Each student will receive, in addition to the plants, a folder of informative papers on various aspects of the course. Included will be a copy of the Society's publication, "How to Grow Herbs in the Midwest".

Course dates are Friday, April 11 and Friday, April 18. All sessions will be held in the Lehmann Building. Course fee is $20, or $15 for Garden Members. Attendance is necessarily limited to 50. Acceptance is first-come, first-served; early registration is advised. Course hours are 9:30 a.m. to 2:30 p.m. with 45-minute luncheon break; a bag lunch is suggested.

Seed Exchange With China Continues

Peter H. Raven, left, and Mayor James Conway inspect seeds which were a gift of Nanking Botanical Garden.

The ongoing exchange of seeds between the Missouri Botanical Garden and the Peoples Republic of China continues. For Mayor Conway's visit to China this past fall, the Garden prepared 30 kinds of seeds of native Missouri trees and shrubs — persimmon, oak, dogwood, redbud, fragrant sumac and bald cypress.

These seeds were presented by the Mayor to the Nanking Botanical Garden — in return he brought back seeds of maple, horse chestnut, dogwood, oak, soapberry and elm. Mayor Conway presented them to Peter H. Raven, Garden director.

The Mayor shared some of his observations of China during his visit to the Garden. Nanking Botanical Garden employs a staff of about 150 people, some of whom are students. All of this staff concentrates on botanical research and from what could be gathered, this research is focused primarily on food crop production, herbal medicines and lumber production.

Photographic Highlights of the Past

A sense of wonder expressed by Aaron Hughes during a workshop taught by Christy Moore.

Summer afternoon – bare feet, a waterfall, a friend and a visit to the Japanese Garden.

The Shapleigh Fountain – always a special place at the Garden.

cade

Juno is highlighted by early flowering tulips in the spring. A hidden oasis at the Garden.

Wood ducks are introduced to the Garden by Peter H. Raven (left), Alan Godlewski and Karl Slagle of the Missouri Department of Conservation.

School children receive "hands on" experience at an education class. John S. Lehmann building in the background mirrors the landscape.

Changing Seasons . . . A Photographer's Paradise

Ice covered trees are mirrored in the reflective surface of the John S. Lehmann Building above.

The Arrow makes tethered ascensions, lighting the night sky during t Summer Solstice Party this past June.

Summer is a special time to stroll the trails at Shaw Arboretum in Gray Summit.

News Notes

The Spring Lecture Series promises to be very exciting this spring. In conjunction with the St. Louis Zoo a series of lectures is being prepared focusing on critical habitats throughout the world with emphasis on both plants and animals. Conservation efforts will be stressed as well. The series will feature East Africa; Madagascar; Baja, California; Malaysia; the prairie.

The lectures will begin March 12 and continue through May. Watch your mail for a detailed brochure.

~

The Flora of Panama project has received a grant of $11,000 from the National Science Foundation. The funding is to be applied to the travel arrangements for United States scientists participating in the symposium, "The Botany and Natural History of Panama", which is to be held in Panama City April 14-17, 1980.

The symposium, previously described in the *Bulletin,* is to be held in recognition of the completion of the Flora of Panama — a scientific catalog for all plants known to grow in Panama. William D'Arcy, editor of this work, is in charge of the symposium.

~

The Baja trip would be a great way to launch the New Year. Space is still available on this trip especially planned by Ken Peck, Manager of Instructional Services. Mr. Peck spent several weeks in Baja this past summer searching out areas of special interest.

This twelve day tour will take you from magnificent mountains to the ocean through coastal plains and desert. Pine forests will be explored and a bird sanctuary visited. Missions, an integral part of local history, will be toured. Special attention will be focused on the local flora.

Call the Members' office, 772-7600, for further information.

~

New members have a special event planned in their honor. February 14 has been selected to introduce new members to the Garden. There will be a behind-the-scenes tour of the greenhouses, herbarium, library and introductions to staff members. Refreshments will be served.

~

John Elsley has been named superintendent of the Japanese Garden. This is a newly established position within the department of landscape horticulture — as such it includes the supervision of all aspects of horticultural maintenance in the Japanese Garden.

~

Jim Rhodes resigned late last fall after completing the design and installation of the fall show under the tent. His resignation, due to health reasons, provides him with the time to nurture a developing vineyard in the Augusta area and to do a bit of relaxing.

~

Clarissa Start's new book is out: *(We Buy Junque) – We Sell Antiques.* She has turned a love of antiques into a thriving business located in High Ridge. The book is based on Clarissa's experiences as a newcomer to the field.

Venezuela — A Cooperative Scientific Venture

Large numbers of plants and animals are destroyed on a regular basis throughout the world — it is a fact of life. Expanding populations with rising economic needs especially in tropical areas make tropical forests extremely vulnerable.

Because of this awareness, and because of the Garden's commitment to exploration and conservation, a joint project has been underway for over two years in Venezuela. The Instituto Botanico and the National Botanical Garden and Herbarium, a division of the Ministry of Environment and Perishable National Resources, are cooperating with the Missouri Botanical Garden on this project.

One way to preserve large tracts of land for ongoing study is to set aside large tracts as national parks and preserves. Fortunately, Venezuela is a leader in Latin America in setting aside such areas.

There are, however, vast unexplored areas which are being stripped of natural vegetation for agricultural purposes and therefore the plant and animal habitats are destroyed. In such areas the only way of documenting the original vegetation is to take samples before such destruction. This is the goal of the joint project in this country.

More than 20 acres have been identified as being botanically rich and interesting. These areas are relatively undisturbed and are poorly known botanically.

Concentrating on five of the areas during the first two years of the project, over 10,000 numbered botanical collections have been made representing between 40,000-50,000 individual plant specimens. Dr. Julian Steyermark, who recently visited the Garden, Dr. Gerrit Davidse and Ronald Liesner are working together on this project along with several Venezuelan botanists.

The project has been funded by the National Science Foundation and its Venezuelan counterpart, CONICIT. This sort of cooperation has provided a model for scientific cooperation.

Another goal of this project is to make the collected specimens available to botanists world-wide who have interest in this group of plants. These experts in various areas provide in-depth information on previously uncollected plants. New species may be discovered, range extensions, structures of fruits and flowers previously unknown and not studied — these are only a few of the many possibilities.

Venezuela is a diverse area geographically covering ocean beaches, deserts, grasslands and mountains which also provides a botanically diverse and rich flora. Faced with such a challenge and the fact that less than five percent of the surface area of Venezuela has been explored, the need for continuing exploration is obvious. Botanists estimate that more than 5,000 species of plants previously unknown may be found here.

The Garden's cooperative project with this country will enrich the world's knowledge of tropical habitats.

Gardening in St. Louis

Winter is a perfect time to curl up before the fire with a favorite gardening book or a new seed catalog. These leisure hours provide a great time to plan changes or additions to the garden this spring. This is a great way to chase away those winter blues.

While planning your garden and making up seed orders, be certain to check your notes on particular successes and possible failures last year. Although memories vary it is always a good idea to go back and refresh your recollections from notes. A few months out of touch with your garden can make some experiences fade.

It isn't too early to make up your seed order. Cool weather crops can go in early depending, of course, upon the season. Be certain to check out the new award-winning vegetables and flowers for 1980. More disease resistant varieties are being developed each year — a great boon for every gardener.

Holiday Gift Plants

If you received a plant or two over the holidays, a few tips for their care will keep them healthy longer. All blooming plants require good light but not direct sunlight. A diluted liquid fertilizer applied at regular intervals gives them the needed boost to keep blooming. Foliage plants should not be heavily fertilized until they show signs of new growth. Clean the leaves if dust begins to accumulate. Rotate the pots so that the growth will be even and the plant will maintain its symmetry. Continue to watch watering — don't over water.

Bulbs that were planted in pots for forcing should be checked at regular intervals. Bring them into a warm dark area when an inch or so of green is visible. When buds begin to show, move to a brightly lighted spot! Keep cool and the flowers will last longer. These lovely spots of color serve as reminders that spring can't be too far away.

Forcing Branches

Another way to chase away the winter blues is to force a few branches into flower. Toward the end of January or during the month of February branches of apple, flowering quince, pussy willow and forsythia can be cut. Bring in the house and immerse in warm water for half an hour. Remove, make a two-to three-inch slit at the base of the stem. Place in an attractive container in an area where the temperature is around 65°. When color begins to show arrange and place in good light.

Some of these branches will root in water and can be potted later. Keep in a cool place until the cuttings can be planted outside. Later in February cuttings of other trees and shrubs can be taken if desired. Bottom heat promotes rooting. After four to six weeks, rooted cuttings can be placed outside in a hotbed or colf frame until planting time.

Odds and Ends

If you are the fortunate owner of a greenhouse, you know that temperatures can soar on bright sunny days even though outside temperatures remain frigid. Keep a watchful eye on all plants for any sign of pests or disease and treat accordingly. Repot plants as needed selecting a pot several sizes larger. Some seeds can be planted now — watch carefully for damping off, which is a fungus disease. Apply a fungicide and discard infected seedlings. Transplant seedlings when the second or third pair of leaves appear.

Outside on warm days a trip around the garden would be in order. Check plants for heaving due to frost and firm back into soil. Areas by driveways and sidewalks should be hosed down on mild days if salt has been used during the bad weather.

Take heart — spring can't be too far away. Those books and catalogs will cheer up your dreary days.

— Barbara B. Pesch.

Everything is coming up orchids for the show in the Climatron February 2-March 9.

Orchid Show

The Orchid Show opens in the Climatron on Saturday, February 2, 1980. What better way to chase away the winter blahs than to visit the lush tropics of this geodesic-domed greenhouse. The show will be previewed Friday, February 1 from 5:30 p.m.-7:00 p.m. sponsored by Famous-Barr.

As a special offering, the Garden wishes to invite the senior citizens of St. Louis to be our guests for the Orchid Show.

Free tickets are available by mail by sending a self-addressed, stamped envelope with the number of tickets requested to the Public Relations Office.

News Notes

Tower Grove House will take on a new look during January. Pending acceptance of bids and letting of contracts, Henry Shaw's bedroom will be refurbished. Because of the renovation, the house will be closed during part or all of January. If you plan to visit Shaw's house in January, a phone call to check on the progress of the renovation would avoid disappointment.

* * *

For those of you who visited Tower Grove House in December to observe the splendorous decor, those persons who worked so hard on the project follow:

Mrs. Donald R. Steffan
Mrs. Andrew R. Zinsmeyer
Tower Grove House Auxiliary
Twenty-five Gardeners
Mrs. David F. Orwig
St. Louis Herb Society
Mrs. J. Glennon Schreiber
St. Louis Garden Club
Mrs. William C. Bitting
Mrs. Thomas S. Darnall, Jr.
Village Garden Club
Mrs. William E. Moehlenbrock, Jr.
Concord Garden Club
Mrs. Clarence Hessler
Mrs. Victor A. Silber
Garden Appreciation of
  Greater St. Louis

Two holly trees in the herb garden were decorated for the birds by:
Clayton Wood School Girl Scout Troop #3381
Mrs. Robert Elsperman, leader

* * *

The Garden recently received a grant from the National Historical Publications and Records Commission and as a recipient is one of the first in the state to receive such support.

The grant will be used to process and index the papers of Dr. George Engelmann and Henry Shaw. The collection is comprehensive and the organization of the materials will make them accessible to researchers. In addition measures will be taken to preserve the papers and to protect them against damage.

With the increased interest in local history, and geneology, these papers have importance to researchers. They are in constant demand and unfortunately some papers have disappeared because there is no adequate inventory. This grant will make possible the steps needed to secure these valuable papers.

* * *

Research projects often take form at unexpected times and places. During an international meeting on mosses this past summer in Geneva, Switzerland, Dr. Marshall Crosby spent a few hours looking at previously unstudied moss collections in the Conservatoire Botanique there. Some were over 150 years old and of both historical interest and scientific importance. With grant support from both the Conservatoire and the Monsanto Fund, St. Louis, he returned to Geneva for the month of December to make detailed studies and catalogue the specimens.

The next issue of the Bulletin will deal with this project in depth. Look for this description in the "letters from" column.

* * *

The Plant Shop will have some special offerings during the next two months. Camellias in bud and bloom, azaleas, cyclamen and gloxinias will be available, all of which would make appropriate Valentine's Day gifts.

For the orchid fancier, there will be a large selection of budded plants including cattleyas, cymbidiums, phalaenopsis, paphiopedilums and oncidiums. These plants will be offered during the Orchid Show in February. This will be the largest selection offered all year and include a number of interesting species.

Special care instructions will be included with each plant. Orchids make an unusual addition to your plant collection or outstanding gifts for that special friend.

* * *

The Garden is cooperating with the Corps of Engineers in revising several manuals. These manuals are used by the Corps and cover several areas: turf; planting turf; trees, shrubs, ground covers and vines.

The project involves Alan Godlewski, Chairman of Landscape Horticulture; Dr. Gerrit Davidse, botanist and specialist in grasses; and David Goudy as project coordinator.

Calendar of Events

January 10-30
"500 years of
  Botanical Illustration" Exhibit
9:00 a.m.-5:00 p.m.,
Monday-Friday
John S. Lehmann Building

February 1
Orchid Show Preview Party
5:30 p.m.-7:30 p.m.
Climatron

February 2-March 9
Orchid Show
10:00 a.m.-4:30 p.m.
Climatron

February 23-24
Metropolitan St. Louis
  African Violet Society Show
February 23 — 2:00-5:00 p.m.
February 24 — 9:00 a.m.-5:00 p.m.

February — all month
Camellias in bloom
9:00 a.m.-5:00 p.m.
Linnaean House

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Mrs. W. C. Rauscher

In Honor of Hurschel and Veda Humphrey 50th Wedding Anniversary
Denver M. Wright, III

In Honor of Mr. and Mrs. Allen Lasky's 30th Wedding Anniversary
Jerry and Audrey Michelson

In Honor of Mr. and Mrs. Ellis Littmann's Wedding Anniversary
Elsie S. Glik
Dorothy and Hub Moog

In Honor of Mrs. Walter Morris for a Program
Clayton Garden Club #4

In Honor of Mrs. W. E. Moser's 50th Year in America
Mr. and Mrs. Carl Otto

In Honor of Mr. and Mrs. Eric P. Newman's 40th Wedding Anniversary
Mr. and Mrs. Henry L. Freund
Dr. and Mrs. Ben H. Senturia

In Honor of Mrs. Virginia Schreiber's Birthday
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In Honor of Birthday of Sam Singer
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Where Have All The Prairies Gone?

Space, sky, open land, midwest. Those words paint the landscape when you think of a prairie. Webster defines a prairie as "a large area of level or rolling land in the Mississippi valley that in its natural uncultivated state usually has deep fertile soil, a cover of tall grasses, and a few trees."

Americans living in the mid-section of this country should be more familiar with prairies than their counterparts in the East or far West. And yet, there are almost no prairies left in Illinois the prairie state, or in Missouri. What few exist are those that have been carefully preserved or restored.

At one time prairies stretched from Ohio to Kansas and the Dakotas and from Texas to Canada. Big bluestem grasses waved in the breezes, wildflowers bloomed in profusion, colors of gold and wine shifted in the breezes, animals roamed, prairie chickens boomed. The prairie was the sea of the midwest, but it fell to the plow — the midwest became the corn belt. Its fertile plains became farms which yield the grains for the country.

Preservationists are working with determination and some success to save small prairies for study and interpretation. Currently the largest site under consideration is in the Flint Hills of eastern Kansas. Here the soil is thin and stoney and therefore difficult to plow. The land is used mostly for grazing cattle. Environmentalists are pressing for a Tallgrass Prairie National Park — 320,000 acres. Ranchers differ in their views of the project.

Prairies seem to arouse high emotions on both sides.

Missouri Botanical Garden is playing a role in prairie restoration. With a grant of $5,150.00 from the Missouri Prairie Foundation, steps are being taken at Shaw Arboretum to establish a tallgrass prairie of native grassland.

Shaw Arboretum consists of 2400 acres on the eastern edge of Franklin County where forest and prairie were in competition in presettlement times. The site includes upland forest, floodplain, forest, glades, three miles of the Meramec River, managed meadows, a collection of conifers and ponds. The prairie site is located approximately three-quarters of a mile from the parking lot, accessible by trail and service road. It is bounded by three service roads which serve as excellent firebreaks. The site falls away to woodland on the southern border. The hilltop is 643 feet in height, falling to 80 feet and a one acre pond. The highpoint provides a lovely view of the Gray Summit Hills.

The history of this site has been documented. It was part of a worn-out farm purchased by Missouri Botanical Garden in 1925. Conservation efforts were instituted at that time to reclaim the eroded slopes. Japanese cherry trees were planted in 1928 but they failed to survive. Hay was harvested from the field and often horses were pastured there until 1947. Since that time the area has been kept mowed.

During the past five years the area

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Mr. Bernard F. Desloge
Mr. Alan E. Doede
Mr./Mrs. David C. Farrell
Mr./Mrs. W. Ashley Gray, Jr.
Mr./Mrs. Edward E. Haverstick
Dr./Mrs. August Homeyer
Mr./Mrs. B. F. Jackson
Mr./Mrs. Eugene Johanson
Mr./Mrs. Eldridge Lovelace
Mr./Mrs. Charles W. Oertli
Mrs. Drue Wilson Philpott
Mrs. Miquette M. Potter
Mr./Mrs. Robert A. Ridgway
Mrs. Mason Scudder
Miss Harriett J. Tatman
Mr./Mrs. Harold E. Thayer
Mr./Mrs. John K. Wallace, Jr.

Comment—

Dr. Peter H. Raven

Every week an area of tropical rainforest about the size of Delaware is destroyed or converted to other purposes. Over the years we have reduced the worldwide area of tropical forest to about half its former size, and in thirty years almost none will be left.

In January I was invited to discuss this problem with the staff of the World Bank in Washington. It's not a question of reversing the conversion of tropical forest to other purposes because that's not possible. Economic and social pressures in tropical areas are so great that the clearing of land will continue. The problem is that the fertility and structure of moist soils in the tropics will support agriculture for only a few years. We know of no technology that will restore moist tropical soils when they are depleted. The issue faced by the World Bank and others concerned with the future is what to do to improve this situation in the time remaining before the tropical forest, which is the home of about two-thirds of all kinds of plants and animals on earth, disappears.

Suppose we are standing outside a burning house. Our first impulse is to rush in and save what is valuable — the silver and the cherished old photograph of grandmother. If it is your house that is burning you know what is there and what to save. But what if you have never seen the house and don't know what is there. You won't know what to save.

What we must do is learn all we can about the plants and animals in the tropics, and how the natural tropical ecological system maintains itself.

This is what the Missouri Botanical Garden, and a handful of similar institutions worldwide are attempting to do.

Peter H. Raven

Letter from Geneva

I have been here for over a week now and have a reasonable idea of the amount of work which needs to be done. I have come here to sort and begin to identify a collection of some 3,000 moss specimens which have been accumulating in the herbarium of the Jardin et Conservatoire Botaniques for many years. The collection of mosses here is one of the largest and most important in the world. It contains the personal herbarium of Johannes Hedwig, the first person to work out the exact nature of mosses. He was essentially the Linnaeus of the study of mosses.

Since the collections on which I am working have never been studied before, they have been stored separately from the main collection. I hope to be able to provide preliminary identifications for some two-thirds of the 3,000 or so specimens before I leave.

It is turning out that many of the collections which I am looking at are quite old and important for various reasons. For example, I have found what appears to be the second collection of mosses ever made in Louisiana. This collection was made in the early 19th century and previously only one species was thought to be contained in it. However, I have found four separate specimens each of which contains several species. By using the excellent library here I have been able to trace something of the history of the collector, a person named Tainturier, but little is known of him or of his activities. I will borrow the collections which he made and which have been stored here in Geneva for all these years. I will study them in some detail when I return to St. Louis.

Of course, it is not unusual to study moss collections made during the 1700's, but before coming to Geneva I had never seen any collected before 1700. I have discovered in the collections here several specimens which were apparently collected in the mid-1600's, but unfortunately there is no documentation with them and it will be difficult, if not impossible, to determine where they came from or to determine what they are.

Dr. Marshall R. Crosby

I was struck by several interesting parallels between the Jardin here in Geneva and the Garden in St. Louis. Both are located in the hearts of medium-size cities and both are well over 100 years old. The Jardin receives essentially all of its funding directly from the city. Their efforts are concentrated on public display and research. In the research area, Geneva has one of the best botanical libraries in the world, just as we do in St. Louis. The library and herbarium in Geneva are housed in new, modern buildings as are ours, and the parallel extends to the point of their collections being stored in space-saving compactor units for the most part, just as are ours. The climate in Geneva is much milder than that in St. Louis, and this must help explain the presence of thousands of flowering pansies throughout the beds of the Jardin. On some chilly mornings the pansies look a bit wilted due to the freezing temperatures, but usually by midday they have perked back up and lend a colorful note to the Jardin.

I should be able to look at most of the unknown mosses here before my stay ends. I have excluded from consideration material from Europe and most of that from North America, since I specialize in exotic mosses and since there are other people who can study collections from these areas more efficiently and better than I.

— Dr. Marshall R. Crosby
Director for Research

* * *

There are a number of excellent books and pamphlets dealing with prairies — locations, descriptions, proposed sites, floristic composition, pending legislation. For further information consult the Garden library or your local branch.

The MISSOURI BOTANICAL GARDEN BULLETIN is published six times each year, in January, March, May, July, September and November by the Missouri Botanical Garden, P.O. Box 299, St. Louis, Mo. 63166. Second class postage paid at St. Louis, Mo. $5.00 per year. $6.00 foreign.

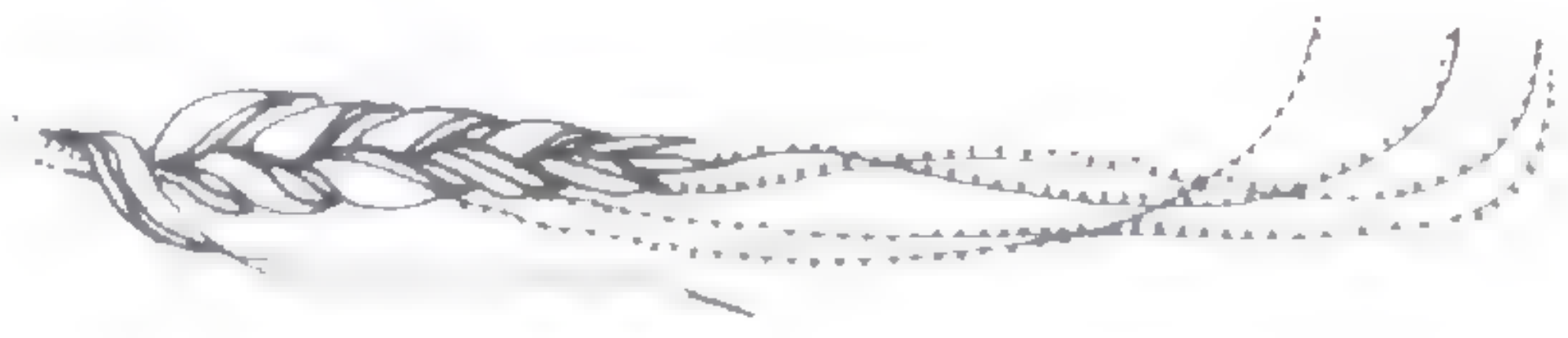
(Continued from Page 1)

was untouched and woody plants began to invade the site. A survey in 1977 found big bluestem, Indian grass, blue grass and switch grass. Butterfly weed and ironweed were the only native forbs present in any numbers.

In 1979 under the guidance and direction of the Missouri Department of Conservation, the Arboretum staff burned four and one-half acres of the site to evaluate the effectiveness of fire as a management tool on this old-field complex.

The results have been spectacular. The rains of May and early August helped to produce small stands of Indian grass which coalesced to form a golden field. Big bluestem grew to eight and one-half feet, waving wine colored stalks majestically. Released from competition, switch grass, prairie dropseed and little bluestem were found in small areas.

The field will be seeded with big and little bluestem and some forbs after the meadow is burned this spring. This will increase the density. Seeds have been collected by members of the Webster Groves Nature Study Society.

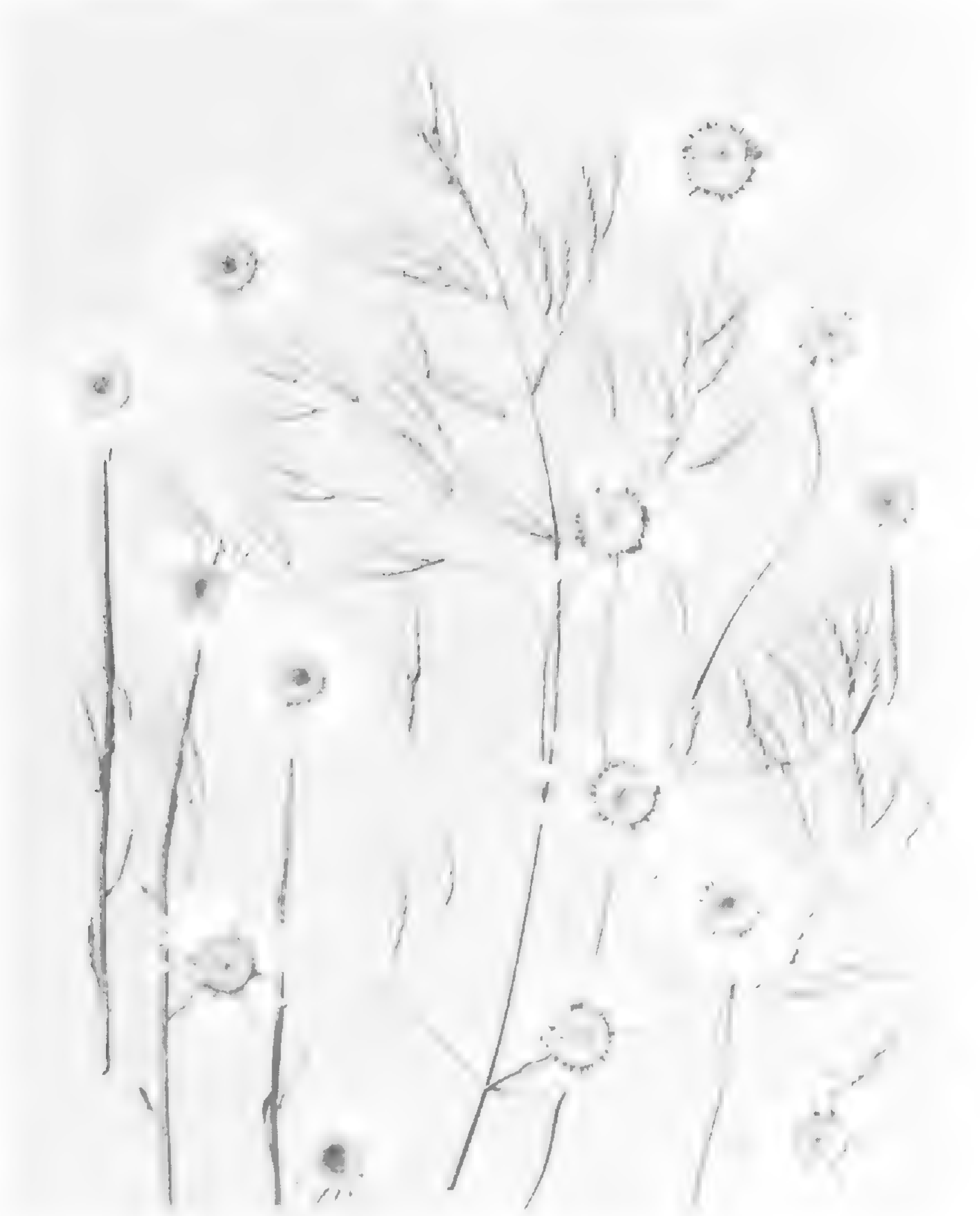


The restoration is a long-term project. New seeds will be introduced over the years, but it may be centuries before the area can be called a prairie. This ecosystem is a delicate and fragile one requiring years of work and patience.

Our lives will be enriched by the opportunity to watch this prairie project. Wine-colored stalks of big bluestem, the rustle of head-high Indian grass, the bright colored butterfly weed, the aroma of crushed slender mountain mint — these are some of the pleasures of a visit to the prairie.

Patricia D. Duncan in "Tallgrass Prairie", said it all: "The prairie is a state of mind as much as it is a place, this heaving, wild, outlandishly beautiful landscape, coming down to us from millions of earth-seasons. . . . The wild tallgrass prairie must be allowed to seep into all of Americas' consciousness."

Springtime . . . Flowers, Shows, Exhibits



The ox-eye daisy is captured in all of its whimsey. It is an escape from American gardens in Colonial times – what a charming weed. This flower is said to be a good luck charm and to have medicinal value.

"Liberty tea" was made by colonists from a collection of leaves twigs, flowers and sometimes bark of plants found in the new world. Though the tea had little medicinal value, its flavor imitated that of the more precious Asian teas.

The spring show will feature bulbs in abundance — every size, shape and color. The tent will be in place in front of the Climatron for this spring spectacular. Opening March 15 and running through April 13 daily from 9:00 a.m. to 5:00 p.m., this display is a must to chase away the winter doldrums.

A special feature of the show this year is an exhibition of dried, pressed, matted herb pictures. The collection has been made and assembled by the St. Louis Herb Society. Each picture is accompanied by information about the herbs used in each picture. The pictures will be on sale and all proceeds benefit the Garden. Sale hours are 11:00 a.m. to 3:00 p.m. daily, 11:00 a.m. to 4:30 p.m. weekends.

~

Persons wanting to volunteer a few hours or more during the spring show are needed to help with the picture sales. Herb Society members will be present, but additional volunteers are needed. If you have some time March 15 through April 13, 11:00 a.m. to 3:00 p.m. weekdays and 11:00 a.m.-4:30 p.m. weekends, please call the Volunteer office.

All volunteers will be given complete instructions and background on the herb pictures.

~

The Answermen are back — the service resumes on March 3, 1980. Each Monday through Friday from 9:00 a.m. to 12:00 noon two Answermen will be on duty at each telephone to answer horticultural questions. This back-up system allows one person to use reference materials and record questions while the other person acts as spokesman. The new numbers are: 577-5143, 5144 and 5145.

~

The Seventh Annual North American Prairie Conference will be held August 4-6, 1980 at Southwest Missouri State University in Springfield. Additional hosts include the Missouri Prairie Foundation, Missouri Department of Conservation, Missouri Department of Natural Resources, the Society for Range Management, Missouri Botanical Garden and the Nature Conservancy.

For further information please write:
Seventh North American
Prairie Conference
Department of Life Services
Southwest Missouri State University
Springfield, Missouri 65802

Tom K. Smith, Jr.,
President, Board of Trustees

Mrs. Robert Kittner,
President of the Executive Board
of the Members

Dr. Peter H. Raven,
Director

People In The News

Congratulations to Erna Eisendrath — 1979 Woman of Achievement — Natural History. Mrs. Eisendrath's association with the Garden dates to the time of Dr. Edgar Anderson who encouraged her botanical interest. With that encouragement, she went back to school at Washington University and obtained her masters degree in 1960. Dr. Anderson recommended that she teach his classes and she has been doing that ever since.

In addition to her teaching career, Mrs. Eisendrath is the author of "Missouri Wildflowers of the St. Louis Area" published by Missouri Botanical Garden. The book is the culmination of many years of research.

* * *

Mr. Steven A. Frowine, currently Director of the Pittsburgh Garden Center, has been appointed Chairman of Indoor Horticulture. He will assume his new position at the Garden April 15.

Mr. Frowine is a graduate of Ohio State and holds a masters degree in ornamental horticulture and horticulture education from Cornell University. He served as supervisor of education at Pacific Tropical Botanical Garden, and editor and activities coordinator at the Garden Center of Greater Cleveland before becoming director in Pittsburgh.

Steven A. Frowine

The Taylor family is well represented at the Garden. Both Frank and Catherine spend each Thursday in different areas of activity.

Frank is a familiar figure making mail rounds with Kurt Schwartz. In addition to the mail rounds Frank, who is 77 years old, carries out special projects for Kurt.

Catherine works in the volunteer office for Peggy Brockmann each Thursday morning. She answers the telephone, provides information and performs many clerical tasks. Her many years working as a receptionist for a physician provided lots of experience in these areas.

At lunch time Catherine walks to the Maintenance building to join Frank for lunch. In the afternoon Catherine works in the Herbarium for Dr. John Dwyer. To quote John, "I plan my day around Catherine on Thursday."

The Taylors' volunteer efforts are considerable — thanks to a great couple!

Invitation

Here is your invitation to the Members Spring Show Preview Saturday, March 15, 1980 9:00 a.m.-5:00 p.m.

Members may bring guests – free!

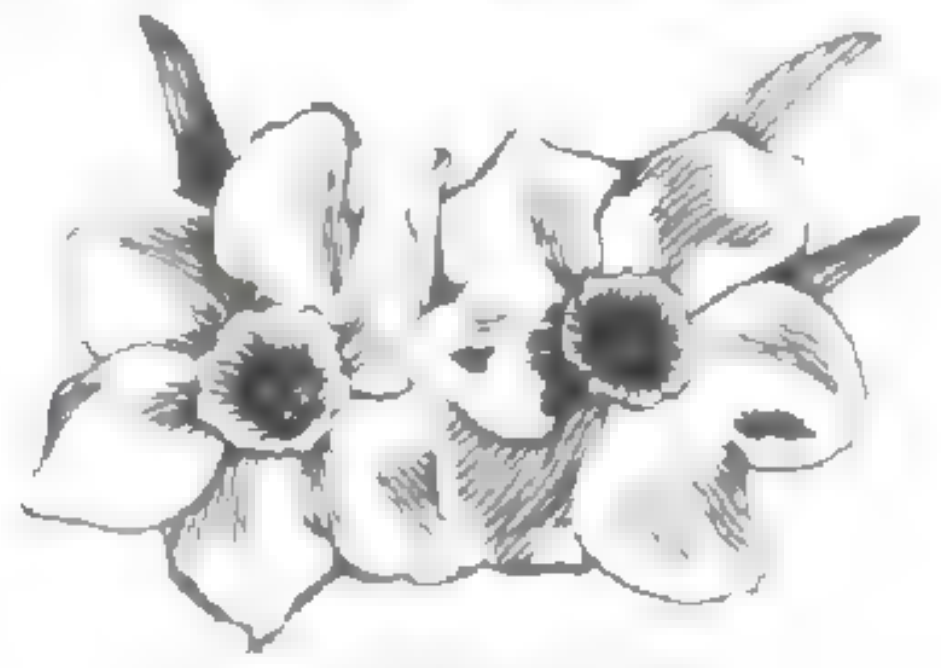
Special Gift drawing for guests

Free Herb Plant (to first 500 Members)

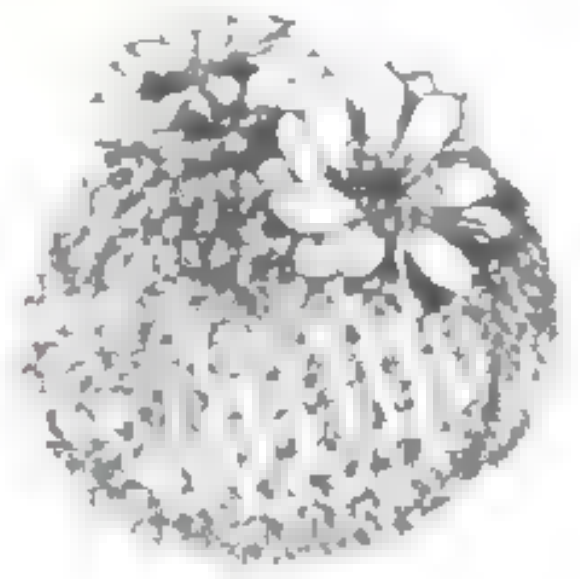
15% Discounts for Members at The Garden Gate Shop, Plant Shop and the Greenery Restaurant

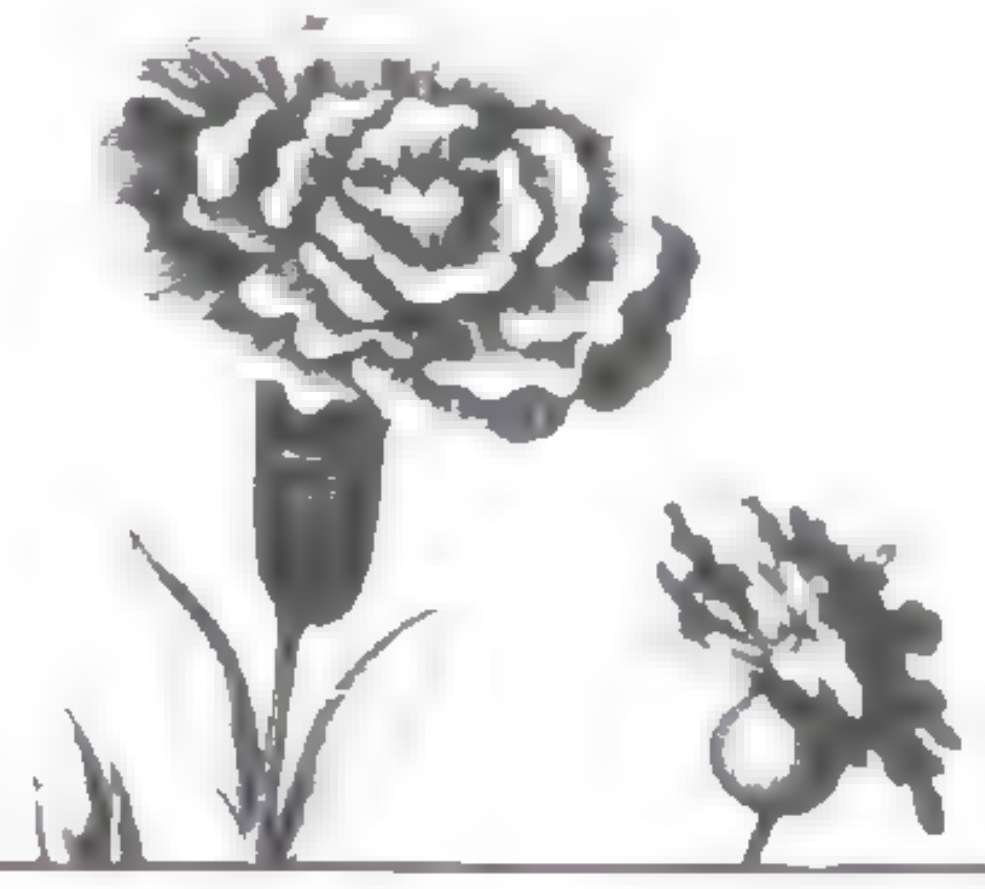
Present membership card for admittance.

MARCH

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	 ORGANIC GARDENING
9	10	 SPRING WILDFLOWER WALKS SHAW ARBORETUM	12 SPRING LECTURE SERIES	13	14	MEMBERS' DAY • SPRING FLOWER SHOW BEGINS DAILY UNTIL APRIL 13 • ORGANIC GARDENING
16	17	GARDENING FROM THE GROUND UP • LECTURE: ENGLISH GARDENS • SPRING WILDFLOWER WALKS SHAW ARBORETUM	19	 GARDENING FROM THE GROUND UP	21 EVENING HIKES AT THE SHAW ARBORETUM	PHOTOGRAPHY WORKSHOP (BASIC) • INSECTIVOROUS PLANTS (EDUCATION) • BIBLICAL PLANTS EXHIBIT MARCH 22 - APRIL 1
23	24	GARDENING FROM THE GROUND UP 25 SPRING WILDFLOWER WALKS SHAW ARBORETUM	26 SPRING LECTURE SERIES	27 GARDENING FROM THE GROUND UP	28	29
30	31					

APRIL

S	M	T	W	T	F	S
		PRUNING LEHMANN BUILDING 1 SPRING WILDFLOWER WALKS SHAW ARBORETUM	 THE CULTURE OF CACTI & SUCCULENTS	3	4	 PHOTOGRAPHY WORKSHOP (ADVANCED)
6	7	GARDENING FROM THE GROUND UP 8 SPRING WILDFLOWER WALKS SHAW ARBORETUM	SPRING LECTURE SERIES 9 THE CULTURE OF CACTI & SUCCULENTS	10 GARDENING FROM THE GROUND UP	11 HERBS USES AND CULTURE	12
 ROSE CLINIC DEMONSTRATION	14	GARDENING FROM THE GROUND UP 15 SPRING WILDFLOWER WALKS SHAW ARBORETUM	16	17 GARDENING FROM THE GROUND UP	EVENING HIKES AT THE SHAW ARBORETUM 18 HERBS USES AND CULTURE	19
20	21	SPECIAL LECTURE DR. NORMAN MYERS "THE SINKING ARK" • GARDENING FROM THE GROUND UP • SPRING WILDFLOWER WALKS SHAW ARBORETUM	23 SPRING LECTURE SERIES	GARDENING WITH WILDFLOWERS • GARDENING FROM THE GROUND UP	SPRING PLANT SALE 25 MUIR TREK APRIL 25 — 27	GARDENING WITH FLOWERS AND VEGETABLES (EDUC) • HOME ORCHID CULTURE • NATURAL HISTORY TOURS • SPRING PLANT SALE • ORGANIC GARDENING
FLOWER SUNDAY CHRIST CHURCH CATHEDRAL • SPRING PLANT SALE	28	MINIATURE BONSAI 29 SPRING WILDFLOWER WALKS SHAW ARBORETUM	30			



FOR FURTHER INFORMATION CALL: PUBLIC RELATIONS DEPARTMENT

News Notes

Florence Guth retires.

Florence Guth celebrated her 20th anniversary at the Garden January 15. Upon this occasion she announced her retirement effective February 1, 1980.

Mrs. Guth began working at the Garden on a temporary assignment checking mailing lists of Friends. Shortly thereafter she became secretary to Edgar Anderson and Hugh Cutler. In addition she arranged tours for school children; worked for Ken Peck; helped George Pring; and worked the switchboard.

With such a background, Florence was a natural candidate for the position of executive secretary to the director. She assumed this position in 1965 when Dr. David M. Gates was director. When Dr. Peter H. Raven became director August 1, 1971, Mrs. Guth became his executive secretary, a position she held until her retirement.

Colleagues of Mrs. Guth have begun a fund to plant a tree in tribute to her and her many years of dedicated service to the Garden.

When questioned regarding her future plans, Florence answered "I expect to do some traveling, and to become a Garden Volunteer."

~

An independent study of the Missouri Botanical Garden's financial projections has concluded that the Garden will accumulate an $8 million deficit over the next ten years unless new sources of income are found or program activities are reduced. The study by the Governmental Research Institute, a St. Louis policy study group, dealt with operating funds only and did not consider additional expenditures needed for buildings and facilities.

According to Dr. Peter Raven, Director of the Garden, the Institute's analysis confirms the Garden's own projections. Some form of major tax support appears to be the only possible way to fill the gap and allow the Garden's many programs to continue. One solution sought by the Garden is support through the Zoo-Museum District. Dr. Raven said, "The study shows that Zoo-Museum District funding would enable the Garden to continue operating with a balanced budget for the forseeable future."

~

The spring lecture series is an exciting venture this year. Entitled "Habitats in Peril" the lectures are a cooperative undertaking with the St. Louis Zoo. Each lecture will feature a botanist and a zoologist who will explore threatened ecosystems.

March 12	Madagascar
March 26	East Africa
April 9	North American Deserts
April 23	Maylaysia
May 7	North American Prairies

All lectures will take place in the auditorium of the John S. Lehmann Building at 10:30 a.m. and 8:00 p.m. These lectures are for Members of the Garden and Friends of the Zoo.

A special display in the lobby will be prepared for each lecture which will include rare books, herbarium sheets and an animal indigenous to the particular habitat when possible. Questions will be answered by representatives of the Garden and Zoo.

~

Special wildflower walks can be arranged at Shaw Arboretum. A guided two hour tour with a ride in the wilderness wagon can provide a unique experience for your group. The minimum number is 15 persons with a 28 person maximum limit.

These tours are available Monday through Saturday by calling the Arboretum. From April 5-June 15 the Wilderness Wagon will run on Sundays every hour from 9:30 a.m. to 3:30 p.m. The charge will be $1.50 per adult and $1.00 per child.

~

The spring membership solicitation is now underway. The goal for this year is 3,600 new members. We would like to encourage all of you to bring friends to the Garden to introduce them to the facility and its programs. You as members are the best advertisement for recruitment.

Muriel Poston returns after a six month absence to assume the new position of Administrative Curator of the Herbarium.

Dr. Marshall Crosby announced the appointment of Muriel E. Poston as administrative curator of the herbarium. In her new position, Dr. Poston will be supervising all of the activities of the herbarium and its staff.

Dr. Poston obtained her undergraduate degree in biology from Stanford University and both of her graduate degrees from the University of California — Los Angeles. She has taught at Stanford, University of California, Santa Monica City College and Washington High School in Los Angeles. Her research background is extensive.

Dr. Poston served as a postdoctoral fellow at Missouri Botanical Garden 1978-1979. Her field of interest focuses on the problems in vascular plant systematics of neotropical groups.

News Notes

Tom K. Smith, Jr., has been re-elected president of the Board of Trustees of the Garden, announced Peter H. Raven, Garden director. Mr. Smith has served as the board president for the past five years.

Other officers elected were William R. Orthwein, Jr., chairman of the McDonnell Douglas Automation Company, first vice-president; Daniel L. Schlafly, second vice-president; Charles W. Orner, Garden assistant director and controller, secretary.

In other board action, Mr. Howard F. Baer was appointed honorary trustee. Mr. Baer, board member for 20 years has been instrumental in leading the Garden toward the culmination of the master plan with the construction of the Visitor Center scheduled to begin this spring.

Louis S. Sachs, president of Sachs Properties, Inc., and vice-chairman and chief executive officer of Sachs Electric Company has been elected to fill the board vacancy created by Mr. Baer's appointment.

Mr. Sachs has been interested and involved with the Garden for many years. Currently he is directly involved in construction in progress.

He was recently elected to the board of Washington University, serves in a similar capacity for the Jewish Hospital of St. Louis, St. Louis Union Trust, the St. Louis Symphony and other cultural and charitable institutions.

Louis S. Sachs

The Garden Gate Shop has a fantastic array of baskets in every size shape and form – just in time for Easter. There are china bunnies, ceramic eggs, silk flowers and many other items. Shopping on March 15 will provide a 15% discount.

The Spring Plant Sale will be bigger than ever this year. Mark your calendar so that you won't miss this important event; Friday, April 25 — 10:00 a.m.-6:30 p.m.; Saturday, April 26 and Sunday, and April 27 — 9:00 a.m.-5:00 p.m.

The sale will take place in the Plant Shop, Orchid range and Head House. The pre-sale on Friday will offer all items to Members at a 20% discount. Non-members may attend on Friday, but will not receive a discount. Saturday and Sunday the sale is open to the public who may enter through the west gate of the visitors' parking lot and all purchases will be discounted 10%. Members again will receive a 20% discount.

The selection of plant materials includes deciduous trees and shrubs, evergreens, herbs, perennials, bulbs, vegetable and bedding plants, hanging baskets, ground cover and the usual selection of house plants. This is an ideal opportunity to select materials for your garden. The selection will be larger than usual this year. Don't miss the Spring Plant Sale.

~

An application for a $700,000 grant for the Garden's new Visitor Center was filed with the National Endowment for the Arts on January 3, 1980. The grant, if approved, will provide a matching dollar for every $4 in new or increased contributions and memberships. The program, part of NEA's Challenge Grant Program, is designed to encourage donors to increase their level of support for cultural institutions. An announcement of grants awarded for 1980 will be made on or about October 1, 1980.

News Notes

A special lecture will be given April 22, 1980 — "The Sinking Ark — Conservation in the Tropics" — by Dr. Norman Myers, outstanding author and research scientist. The lecture will be given at 3:00 p.m. and 8:00 p.m.

According to Dr. Myers, of the five to ten million species on earth, we could well lose at least one million by the end of the century. It is probable that we may be losing one species per day. Extinction of species constitutes an irreversible loss — once a species disappears it is gone forever. Many of these could be of economic value.

The main process by which species are driven extinct is loss of habitat which occurs mainly through economic exploitation. This is certainly true of the tropical moist forests. These forests could provide food, drugs and timber yet they are being destroyed for timber and pastureland to raise beef.

The problems of the declining tropical forests and that of disappearing species in general can be seen as being intimately related. In fact the challenge of conservation of species is a microcosm of broader problems that arise from integrated living in the global village.

Dr. Myers, who is a roving editor for International Wildlife and a field editor for Defenders of Wildlife is eminently qualified to discuss these problems. Born in England, Dr. Myers now resides in Nairobi-Kenya, but also spends a great deal of his time traveling doing field research. His list of ongoing consultations is overwhelming.

This is certain to be an exciting event — don't miss it.

~

Many surprises await visitors to the Garden this spring. The main entrance will be adorned with large hanging baskets which will be planted with seasonal plant materials. The Climatron steps will be enhanced by large containers which will be planted with geraniums.

A new rose arbor will soon be in place in the Gladney Rose Garden. New perennial beds will be planted in front of the Linnaean House which is now resplendent with restored windows on the north side. Phase one of the restoration is now complete.

The beds from the main gate to the Climatron will display spring bulbs at their best in all their rainbow hues. A new addition will be a display of parrot tulips behind the Climatron.

The Anne L. Lehmann Rose Garden will have All America Rose test selections in the first terrace beds. These beds are closest to the Shapleigh Fountain. Here visitors can see roses being tested for beauty, color, hardiness, and hybrid vigor before release for public sale.

~

The Henry Shaw Fund which was established in 1979 to seek funding for the Garden's program activities exceeded its goal by $11,000 according to Harry E. Wuertenbaecher, Jr., Chairman. Wuertenbaecher led a team of volunteers who agreed to raise $175,000 in the six-month period between July 1 and December 31, 1979. The actual amount raised was $186,000. The goal for the twelve-month period ending December 31, 1980, is $325,000.

~

It all began with a group of seven people in Tulsa, Oklahoma. These people were interested in preserving nature's botanical bounty especially of the roadsides.

From this beginning the program has grown and has been reinforced by the National Council of State Garden Clubs, Inc. In cooperation with the Department of Conservation wildflower seeds have been sown along the roadsides and mowing delayed until blooming is finished.

As a tribute to this effort "America's Wildflowers" have been depicted botanically correctly on a collection of linens sold by J.C.Penney stores. A small percentage of the profit returns to the National Council of State Garden Clubs, Inc. to be used for research.

The Garden has been cooperating with the National Council in the compilation of a Wildflower Directory to be completed in March. This enormous effort spearheaded by Rick Daley and Gene Sullivan is basically aimed at getting people in touch with the experts. The country has been divided into six regions. Experts have been contacted in these areas. The results of these contacts are being compiled and will include general propagation techniques, seed sources, and bibliographies.

About 75 copies will be produced for placement with Garden Clubs and libraries. It's aimed at the non-botanist.

~

A reminder that the tea room is open for lunch on Tuesday and Thursday by reservation only. Call 577-5150 before noon Monday or before noon Wednesday.

Hot lunches will be served until April 29. Beginning May 1, the menu will change to a chicken salad or a fruit salad. The tea room will seat forty and special arrangements can be made for groups.

~

The Arts and Education Council of Greater St. Louis is a federation of educational and cultural organizations in the St. Louis area. As part of the Council's franchise, it provides certain types of publicity, coordinating services and financial support to its funded members. Missouri Botanical Garden, as such a member, depends on the Council for an important part of its operating budget. Therefore, during the Arts and Education Council's annual fund drive, we are called upon to participate in their phonathon.

This year will mark the fourth year of this program. We need 30 people for each session on two Saturday mornings from 9:00 a.m.-12:00 noon. There will be Garden staff, members and volunteers participating in both of the sessions.

We hope we can count on your help once again. Please fill out the following form, or call 577-5187.

Mail to: Mrs. Peggy Brockmann
Missouri Botanical Garden
P.O. Box 299
St. Louis, MO 63166

Name: ____________________

Address: ____________________

____________________ Zip ________

Phone: ____________________

Session Available:

________ Saturday, March 8, 1980
9:00-12:00

________ Saturday, March 15, 1980
9:00-12:00

Gardening in St. Louis

As the days become longer, thoughts turn more and more to working in the garden. It is always tempting to rush the season. March often brings very wintery weather so begin with some moderation.

Early flowering bulbs will poke up here and there as days grow warmer. There is nothing as cheerful as crocus and daffodils after the long winter wait for spring. As bulbs bloom, let foliage remain and mature, do not remove.

Spring Cleanup

As weather permits, begin to clean up the garden of the winter accumulation. Clean up flower beds and lawns. If mulch is removed, replace as mulch keeps down weeds, keeps soil evenly moist and as it breaks down adds nutrients to the soil. Early spring is a good time to get mulches in place before weeds have a chance to get established. All shrubs benefit from mulching especially rhododendrons and azaleas.

Lawns should be fertilized after cleaning. Apply a balanced fertilizer following the manufacturer's instructions. Apply a pre-emergent weed killer for crabgrass around the middle of April. Don't use weed killers on newly seeded areas — wait at least six weeks.

Vegetable Garden

If your vegetable garden was prepared last fall, it should be ready to work as weather permits. A balanced fertilizer should be worked into the soil prior to planting. Early cool weather crops can go in as soon as the soil is workable.

Plan your vegetable garden carefully to make best use of your space. Interplant small fast growing vegetables between rows of slower growing varieties. As the faster growing ones are harvested, the slower growing varieties can use the space.

Cover pathways with straw or wood chips making the garden accessible even in bad weather.

If you don't have space for a vegetable garden, consider planting some in large containers, planter boxes, barrels or window boxes. Many of the newly developed vegetables have been bred for compactness and productivity. These make ideal candidates for containers. With continued inflation every bit helps.

Pruning

Wait until April to cut back rose bushes. When weather moderates, remove mulch slowly over a 10 day period. If rose cones have been used for protection, remove during the first part of March.

Prune roses during the first half of April before growth begins. Cut back damaged branches and prune according to variety. Apply fertilizer according to directions. Mulch with organic material to keep down weeds and conserve moisture.

Odds and Ends

When selecting seeds and plants from area garden centers, select from disease resistant varieties. Try some of the All-America winners for 1979 or 1980. If you are starting seeds on the windowsill or in the greenhouse, feed regularly to keep them vigorous. Be certain they receive plenty of light or they will become leggy.

As plants go outside later, harden them off slowly. Place outside for short periods at first and increase time periods. This is true of the cool growing vegetables, too. It is too early for warm growing plants.

Keep feeders filled for your feathered friends. Clean bird houses and nesting boxes and put up new ones. Birds will need to have water available as well.

Plant trees and shrubs as ground is workable. Those that must be planted while dormant must go in soon. Plant material in cans or balled and burlapped can be planted almost anytime.

Best of all enjoy these early days of spring which always seem so special!

— Barbara B. Pesch

* * *

Mrs. George Preisack, a Tower Grove House guide, has given more hours than any other volunteer. She was recently featured in the St. Louis Post-Dispatch for her culinary talents in making gingerbread houses.

Members' Trip England in May

A special Garden tour to England will be led by John Elsley this spring (May 8-22). A native of England, John has made special arrangements to tour many private gardens as well as public ones in the West county and East Anglia. The highlight of this carefully planned tour will be the Chelsea Flower Show. For information and a detailed itinerary, please call Lise Barr in the Members' Office.

A special slide presentation will be given by Mr. Elsley on March 18, 1980 at 7:30 p.m. in the auditorium of the John S. Lehmann Building. This presentation will provide background for the trip and also an opportunity to view some of the world's most beautiful gardens.

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Missouri Botanical Garden Bulletin

Volume LXVIII Number 3
May/June 1980

Seiwa-En . . . . Three Years Old

Paradise island reflected in mirror-surfaced lake.

It's there. Tranquility, peace — intangible, elusive qualities in our fast-paced lives. Slow the pace, capture the moment, stroll the Japanese Garden. It is now three years old. It has matured, new elements have been added, the mood has changed and vistas have gained depth. A visit to this garden is a new experience.

There are two basic attitudes toward nature: confrontation or acceptance. The western approach tends to be one of confrontation — impose a design upon nature. The eastern approach is one of acceptance. A Japanese garden is a celebration of natural elements; a glimpse of nature pared to its essentials; an interpretive analysis of the world in which we live.

It is helpful to remember that the Japanese are an island people. Mountains loom large in central portions and the ocean laps its edges. These natural elements are basic realities of life.

The heritage of gardening for the Japanese is age-old. It has changed some over the centuries, has been influenced by the religions of Buddhism, and Zen, and by Chinese art and gardening practices. Historically there has been a close relationship between landscape painting and landscape gardening — many artists having profound influence on garden design. Actually artists often placed stones, consulted on design and influenced the developing art through the centuries.

The basic elements in the Japanese garden design are: stones, sand, grass, trees and water. These elements are combined in a continually unfolding manner to provide an experience that opens and closes, that provides silence and then speaks.

The experience is a series of surprises — the elements are in the garden, but the experience is unique to the viewer.

A stroll through the Japanese Garden at Missouri Botanical Garden will bring many surprises in addition to the refreshment of spirit that this garden experience always provides. Perhaps most striking to the viewer are the pines — their structure is bare, basic and beautiful. The years have left their mark in these sturdy, textured trees. What has made this structure so visible is the use of pruning shears — the Japanese gardener's secret to successful gardening. Pines are evident everywhere and as they symbolically represent eternity — they stand with a feeling of permanence.

This garden has been planned with change in mind; as the viewer progresses subtle change are evident. The sparseness and frugality that characterize Japanese gardens seems more strikingly obvious. Nature seems to be more evident. The rocks

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Just a reminder:
The new mailing address is
Missouri Botanical Garden
P. O. Box 299
St. Louis, MO 63166
Telephone numbers:

Switchboard 577-5100
Public Relations 577-5122
Membership 577-5118
Volunteer Office 577-5186
Gate Shop 577-5137
Tower Grove House 577-5150

Comment—

Dr. Peter H. Raven

By now most Members are aware that the Garden is seeking the establishment of a new Botanical Garden Subdistrict, within the existing Zoo-Museum Tax District structure, which could provide new, major financial support for the Garden. The proposal allows a maximum tax levy of four cents per $100 of assessed valuation. The voters of St. Louis City and St. Louis County may be asked to approve this proposal later this year.

The tax funds would supplement our income from other sources and provide a stable base of support on which to build. About one-third of our income over the years would come from taxes. We would still have to raise the remainder, and membership income and gifts would be as important as tax support. The Trustees would continue to manage the Garden under the terms established by the Will of Henry Shaw. The only significant change in administration of the Garden if the proposal is approved will be that City and County residents would be admitted to the Garden free.

If our experience in the Legislature, where the enabling legislation was considered is indicative, people will support the Garden's proposal if they know the facts. But we are all too conscious that these are difficult times to pass tax increases. We will need the support of each of our members as our best ambassadors in the community if we are to be successful in obtaining this public support.

Peter H. Raven

Letter from New Caledonia

Dr. Gordon McPherson

The plane approaches the island and crosses the white boundary line of the barrier reef separating the blue of the ocean from the turquoise of the lagoon. A few miles inland the mountains of the central chain rise abruptly, their tops hidden by clouds. The plane settles towards the landing strip, and I'm arriving in New Caledonia to continue the Garden's collecting program.

It began in February of 1979, with help from the Harry Freund Foundation and the Pacific Tropical Botanical Garden. A field station has been set up, a landrover purchased, and good relations are enjoyed with the local French authorities. The aims of the project include the collecting of herbarium specimens, the introduction into cultivation of endangered species (the seeds or seedlings of which are sent to the Pacific Tropical Botanical Garden and to the Arboretum of the University of California, Santa Cruz), the collection of cytological material, and the sending of a wide variety of materials to individual researchers all over the world in such fields as taxonomy, anatomy, morphology, physiology, and chemistry. By continuing the past year's work towards these goals, the Garden will be making a valuable contribution to our knowledge of the plants of this unique island and to our understanding of the ancient flora of the southern half of the world.

The Pacific island of New Caledonia is interesting in many respects. It lies approximately 1,000 miles away from the islands of Australia, New Zealand and Papua New Guinea, and supports one of the most unusual floras of the world. This flora in many ways resembles that which existed in Australia some 80,000,000 years ago before that continent drifted north to dryer latitudes. Although the island is only 250 miles long by 30 miles wide, it is the home of over 1/10 of the world's living gymnosperm species as well as many of the morphologically and anatomically most primitive of flowering plants.

The fauna is in some ways as unusual as the flora. The insects are varied and of considerable biogeographic interest, but not yet well known. No native amphibians are present, and the reptiles are represented by very few species. The bird fauna is fairly diverse, but the only mammals native to the island are bats. The people of the island today are French speaking. About one half of them are of Melanesian ancestry and one half of French origin. The capital city of Nouméa has a population of about 60,000, fully half that of the whole island.

Geological evidence indicates that during the Cretaceous the land that was to become New Caledonia was attached to Australia, then between 80 — 60,000,000 years ago, both New Caledonia and New Zealand split away from Australia as the Tasman Sea opened up. Later on, Australia was to become much dryer than it had been and many Oriental groups were to establish themselves there. After glaciation had much changed the New Zealand flora, that of New Caledonia was left as the least modified remnant of the formerly widespread ancient flora. The final geological event of botanical interest to New Caledonia occurred when part of the Pacific Ocean crust was thrust over much of the island thereby covering it with a thick layer of oceanic rock. This rock was rich in nickel, chrome, and cobalt, and the mining and smelting of these ores are the basis of the New Caledonian economy.

New Caledonia, in fact, stands third in the world with respect to nickel production behind the USSR and Canada. The soils derived from this rock are rich in toxic elements and are poor in important plant nutrients, and this fact may have favored the preservation of the original flora by hampering the establishment of invading species from other islands.

Much of the fairly flat western coast is today pasture land covered with a savannah vegetation. Rugged mountain ranges covered with a variety of forests or with a maquis vegetation occupy most of the rest of the island. Because of the direction of the prevailing winds, the east-facing mountain slopes receive much more rainfall than those facing westward, the west coast receives most of its rain between January and June and very little during the second half of the year. On the east coast, the rains are more evenly spread throughout the year. Mountain tops are usually shrouded in clouds.

The flora amounts to about 3500 species, the vast majority of which are restricted to the island. Several groups which are important components of the flora of other Pacific islands are much less significant in New Caledonia. The legumes, composites, and grasses do not dominate the flora there as they do otherwise throughout the Pacific. Local endemism is frequently encountered. A good example is the discovery within the last decade of a new species of *Araucaria* restricted to a few acres near the southern-most tip of the island.

Many species remain to be found for the first time — on the last day of collecting before my visit to the Garden's herbarium in March, I collected a tiny orange-flowered orchid that has never been described before. These plants were no more than half an inch tall, leaves and flowers included. They were growing among mosses on the moist bark of a tree. Not more than twenty yards from the spot I found a specimen that I believe represents a new species of the genus *Sphenostemon*. The fact that the mountain top where both these discoveries were made is less than 25 miles from Noumea indicates that a good deal of work remains to be done before this unique flora is completely documented.

— Gordon McPherson
Assistant Curator

Floral Highlights

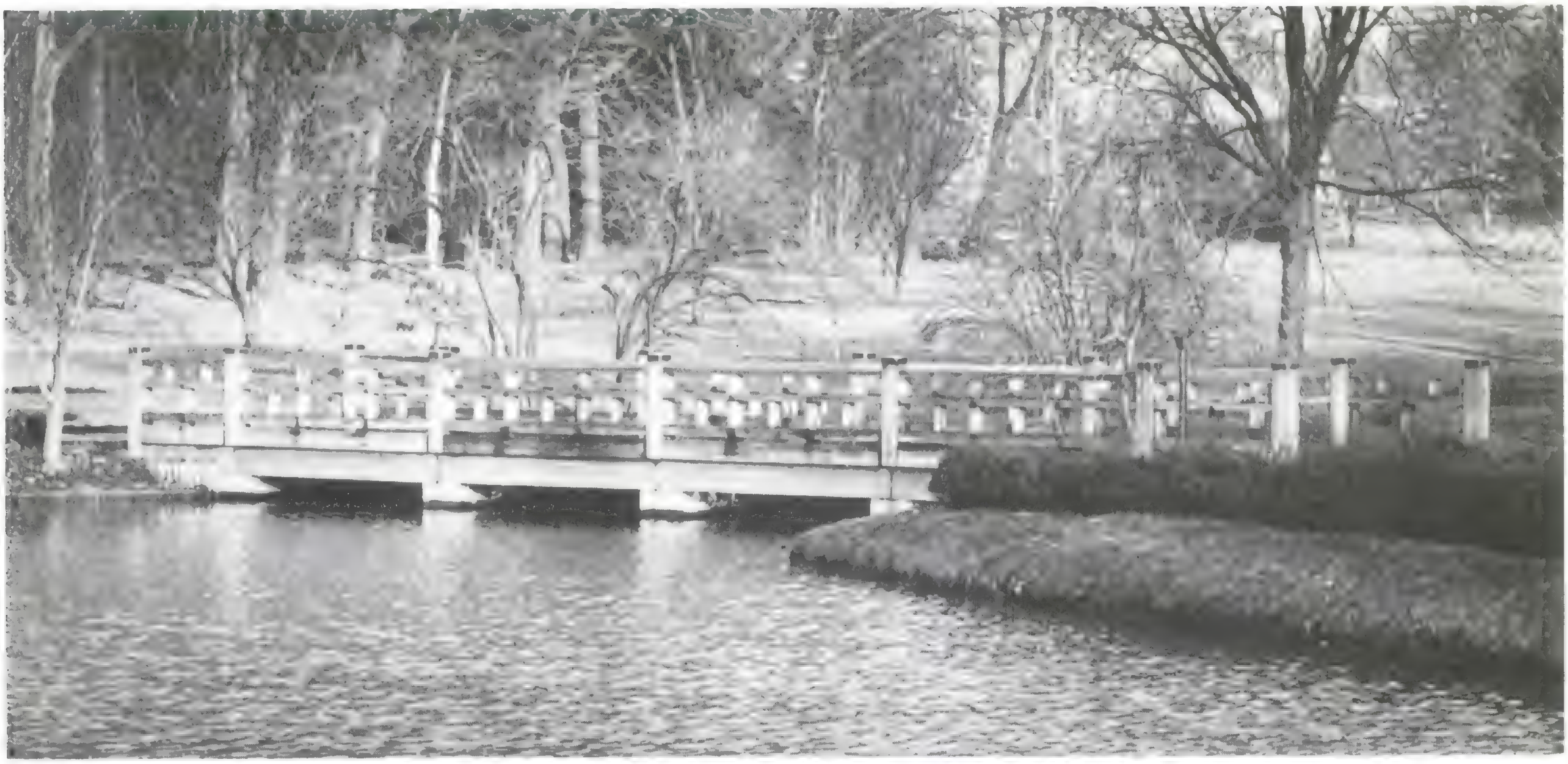
The months of May and June will bring many plants into flower. A few highlights to watch for according to Alan Godlewski, Chairman of Landscape Horticulture are: German bearded iris in the iris garden by the Linnaean House; new perennials in that area, as well; annuals in the beds by the lily pools — there will be a new color scheme this year.

Don't forget the herb garden behind Tower Grove House. This lovely garden is always a special place to see and especially pleasant in May and June.

The MISSOURI BOTANICAL GARDEN BULLETIN is published six times each year, in January, March, May, July, September and November by the Missouri Botanical Garden, P.O. Box 299, St. Louis, Mo. 63166. Second class postage paid at St. Louis, Mo. $5.00 per year. $6.00 foreign.

The Japanese Garden ....

(Continued from Page 1)



Togetsukyo, a gift from Mr. and Mrs. Herman T. Pott. The name in Japanese means bridge across to the moon.

have a sense of permanence, of belonging to the landscape. The islands, dry gardens, plant materials, water, seem to blend and part and merge into the consciousness.

The entrance garden has been complimented by the addition of azaleas. Many peonies have been planted. The peony is called the "flower of twenty days" because of its lasting qualities. The bright, multi-petaled flower is also a symbol of prosperity. The Pring garden was completed last fall and features chrysanthemums. A sense of order can be seen in all the new additions as well as in the original plants. The essense of a tree, a shore, a shrub, a view, can be more deeply appreciated.

A stroll through the Japanese Garden is always a rewarding experience. The new additions and the maturity, make this experience more deeply felt.

An ancient Japanese poet summed it up: "When spring comes, the branches are bent under the weight of the blossoms and the nightingales sing in my garden. Without stopping, come and rejoice with me!"

Don't Miss...

The Japanese Festival will take place over a period of a week this year beginning June 21 and continuing through June 29. Many activities and events have been scheduled. One of the highlights will be performances by the Taiko Drummers from San Francisco. This will mark the third performance by this group at the Garden.

Other activities will include classes and demonstrations in Ikebana and bonsai techniques. Many exhibits will be featured as well as special tours.

During the two weekends of the Festival, the admission charge will be increased for non-Members and Members will be charged a nominal fee.

A special mailing to Members will describe all of the activities and highlights.

Japanese Festival week is planned with many activities — be sure to attend on a day of your choosing.

Tower Grove House

Early in the year a number of improvements were made in Tower Grove House. The upstairs sitting room has been carpeted in an old empire design — snowflake pattern. The carpet acquisition was made possible through funds given in memory of Elizabeth Upthegrove Kirkbride.

Henry Shaw's bedroom is resplendent with new wallpaper as well.

Clarissa Start's new book "We Buy Junque, We Sell Antiques" is on sale in the House. Members receive their usual discount.

Don't forget to make luncheon reservations a day ahead by calling 577-5150. Luncheon is served in the tea room downstairs. Special arrangements may be made for groups by calling well in advance. The summer menu includes chicken or fruit salad, roll and desert for $4.80.

* * *

The spring membership solicitation is now underway. The goal for this year is 3,600 new members. We would like to encourage all of you to bring friends to the Garden to introduce them to the facility and its programs. You as members know what the Garden has to offer and are the best advertisement for recruitment.

News Notes

The Garden will be open several evenings during the summer to allow visitors to enjoy this special time of the day.

During June, July and August the Garden will be open until 8:30 p.m. on Wednesdays. The extended hours apply to the grounds only.

* * *

The 1980 Pitzman Nature Program will once again offer activities at the Arboretum and at the Garden. Arboretum programs feature one-week and two-week programs which are each repeated one time between late June and early August. These programs also provide an optional Saturday for the parents and an optional overnight at the Arboretum for the children. Bus transportation to the Arboretum is furnished for the weekday sessions. Garden programs include half-day workshop sessions on bonsai, the Japanese Garden, desert ecology and insectivorous plants.

All programs are designed for personal involvement and pleasure in learning and sharing new things. Student-teacher ratios are low and classes will be led by professional staff. Registration forms are available from the Education Department (577-5140) and Shaw Arboretum (577-5138).

* * *

A new volunteer program is in effect for visitors at the main entrance. These people will be on hand to give directions and information, to help with large groups and to generally make things run more smoothly.

This new program will begin on weekends and continue daily in the summer. Anyone interested in participating must attend an orientation session and workshop before becoming qualified. For more information call Peggy Brockmann, 577-5187.

* * *

"Sources of Native Seeds and Plants" lists companies and organizations that sell these often hard-to-find items at both wholesale and retail. More than 167 sources of native materials including wildflower seeds, native grass seeds, native tree and shrub seeds and native tree and shrub plant stock. Copies are available for $2.00 from SCSA, 7515 N.E. Ankeny Road, Ankeny, IA 50021. Ten or more copies are available for $1.50 each.

* * *

The Second 50 Forum is an independent monthly newspaper written especially for older adults in the St. Louis area.

Regular features cover a variety of topics from finances to fun, leisure, food, nutrition and gardening. Barbara Pesch, Publications Manager Missouri Botanical Garden, is contributing a regular column on gardening.

For subscription information, contact The Second 50 Forum, 8169 Big Bend Blvd., St. Louis, MO 63119 or call 962-9707.

* * *

A new class in photography will be offered in June. Sessions will be conducted by Robert Lee II, a professional photographer. Instruction will begin in the classroom to cover basic approaches followed by field-work using both morning and afternoon light. Slides will be critiqued at the second session. Mr. Lee will discuss the principles of lighting, exposure and focus controls, creative use of lenses and techniques for achieving superior color slides and pictures.

Registrants should have basic experience in 35mm photography and should bring camera equipment and color slide film to both meetings. Dates: June 14 and 28 — 10:00 a.m.-4:00 p.m. on the 14th and 9:00 a.m. to 3:00 p.m. on the 28th. Attendance at both sessions required. Bring lunch. First meeting in the John S. Lehmann Building. Fee: $25.00 Members; $28.00 non-members. Call 577-5140 to register.

* * *

There will soon be some new residents in the Garden. The Japan American Society is donating 1,000 multi-colored carp for the lake in the Japanese Garden.

They will be shipped from Japan by air freight to San Francisco, then to Fresno where the fish will be kept in quarantine to make certain they are healthy. The carp should arrive in St. Louis around May 5.

* * *

The Henry Shaw Cactus Society members are planning for their show in August. The theme this year will be "The Wonderful World of Cactus and Succulents".

The membership of 250 recently elected new officers who are:

President:
Pat Thomann

Vice-president:
George Moody

Secretary:
Kathleen Dickmann

Treasurer:
Clara Maurer

Board of Directors:
Dorothy Weitz
Betty DuCharme
Jean Lauman

* * *

New Officers of the Executive Board of the Members for 1980-81 are:

President:
Mrs. Mim (Robert H.) Kittner

First Vice-President:
Mrs. Isabelle (Shadrach F.) Morris

Second Vice-President:
Mrs. Sue (Charles W.) Oertli

Secretary:
Mrs. Jean (Andrew R.) Zinsmeyer

Treasurer:
Mrs. Alice (Willard L.) Levy

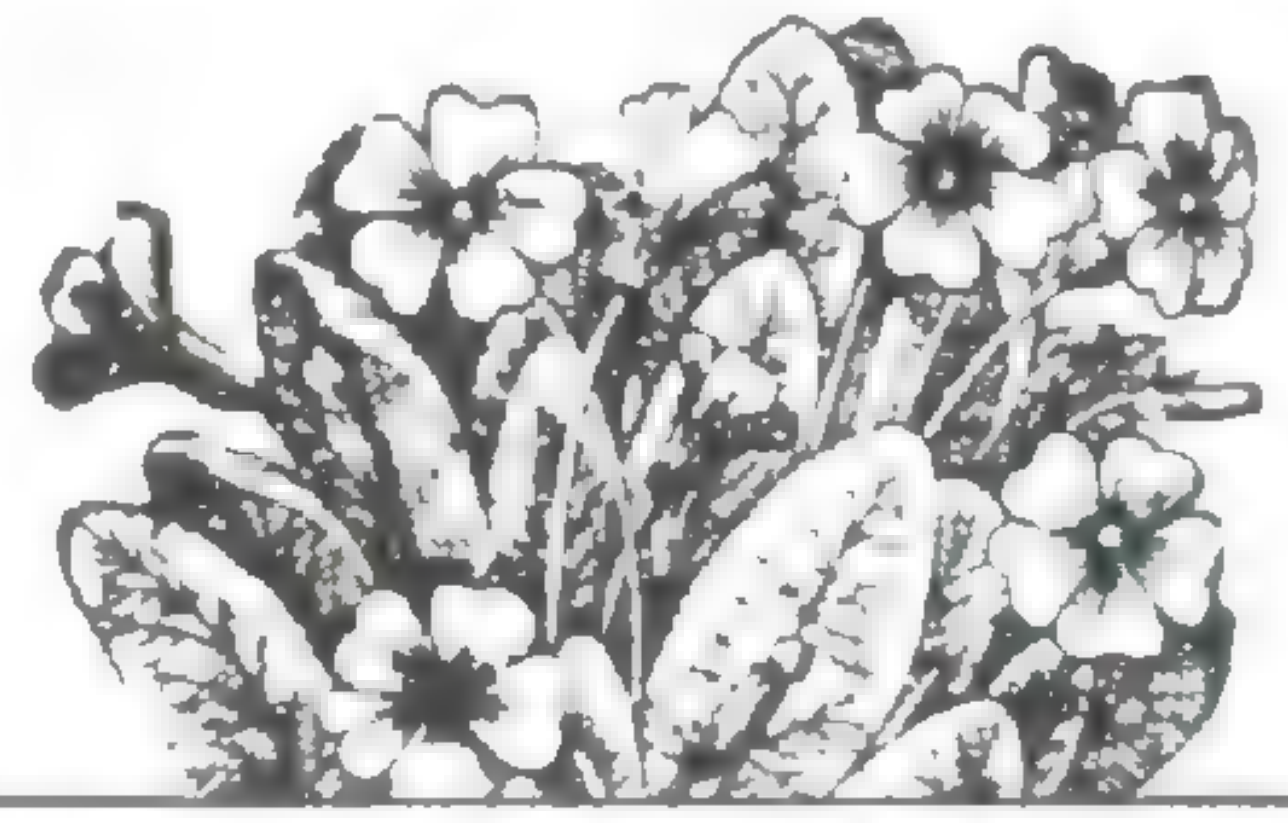
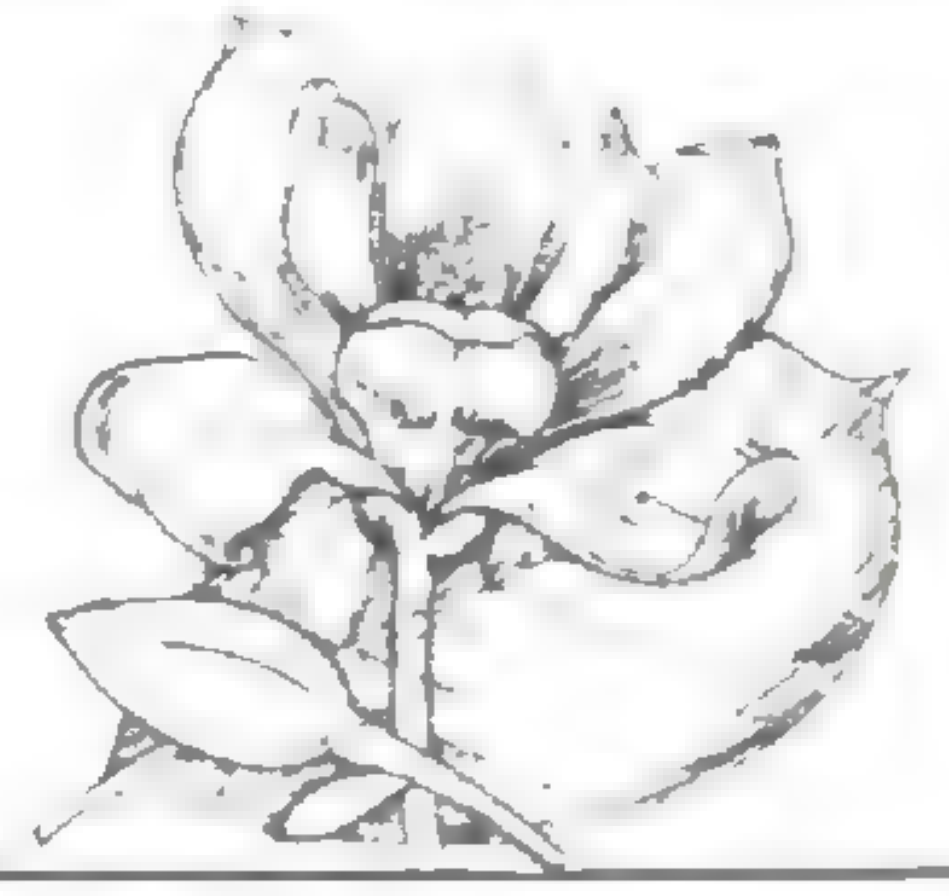
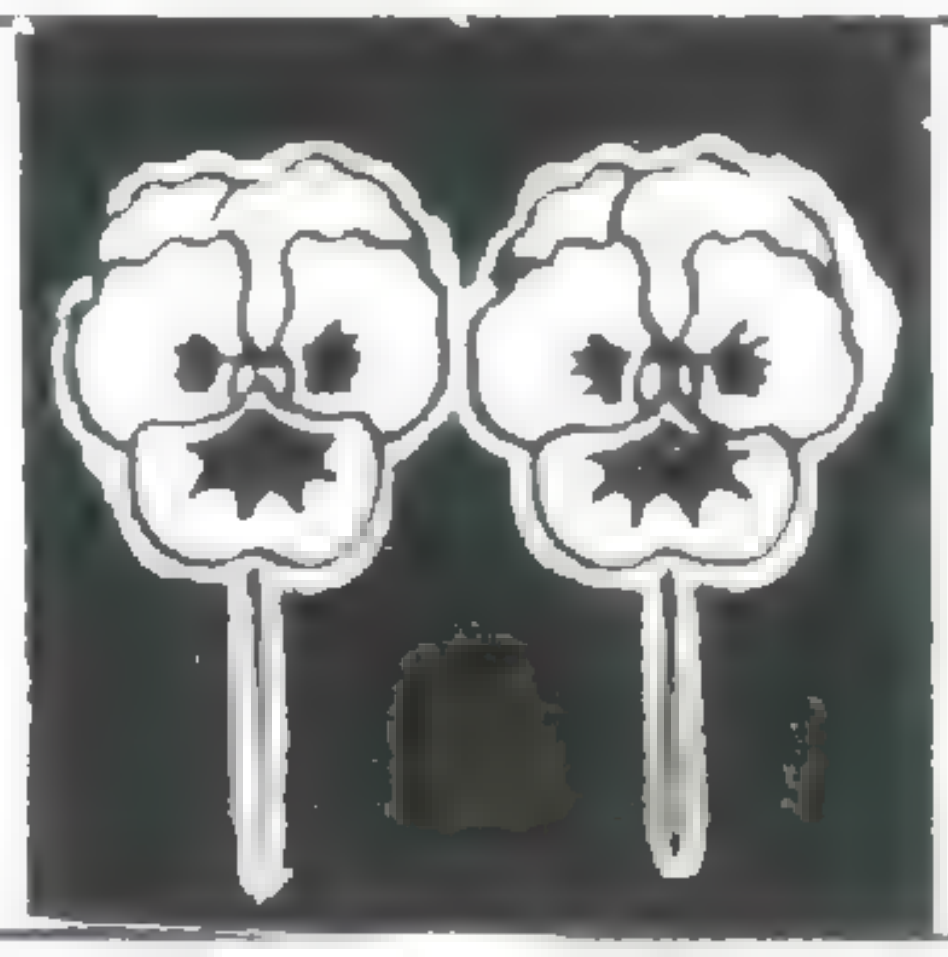
The Chairman of the nominating committee was Mrs. Nora (Walter) Stern. New members of the Board include Mrs. Charla (W. Ashley, III) Gray, Mrs. Ginni (J. Robert) Edwards, Mrs. Ceci (Henry C.) Lowenhaupt, Mrs. Jane (Charles G., Jr.) Schott, Mrs. Marilyn (Edward J.) Schnuck and Mrs. Dusty (Chard P.) Smith.

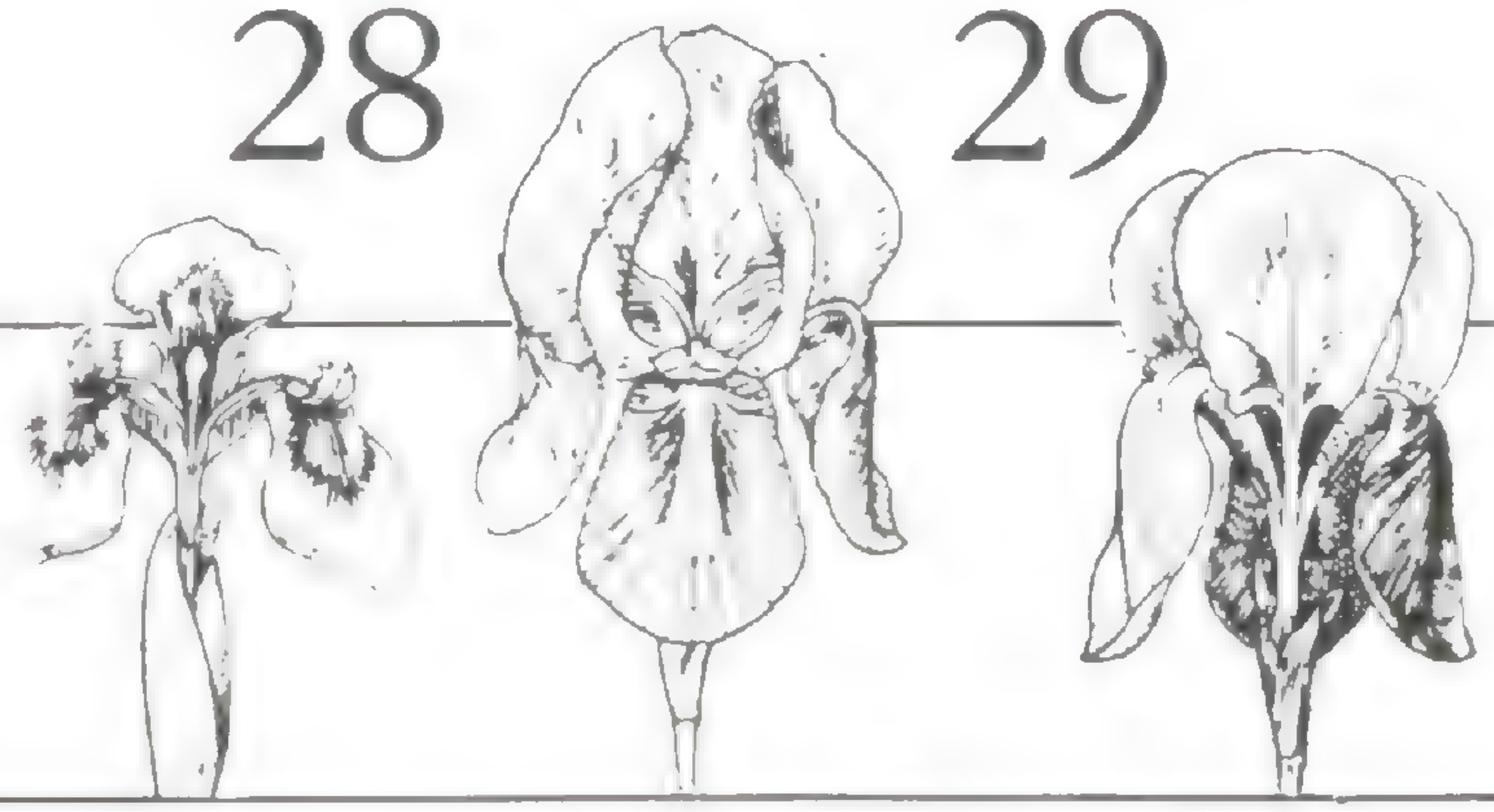
* * *

Susan Flowers, former Public Relations Manager at the Garden, has accepted a new position at the University of Missouri St. Louis. As Director of Public Information she is in charge of all of the information services for the University.

Susan was employed at the Garden for two years.

MAY

S	M	T	W	T	F	S
				1 GARDENING WITH WILDFLOWERS		ORGANIC GARDENING • NATURAL HISTORY TOURS – ARBORETUM • SPRING VEGETABLE GARDEN DEMONSTRATION
 SPRING VEGETABLE GARDEN DEMONSTRATION	5	MINIATURE BONSAI 6 SPRING WILDFLOWER WALKS – ARBORETUM	NORTH AMERICAN PRAIRIES" LECTURE 7	8	THE RIVER AND YOU WORKSHOP 9 MAY 9-11	TOURS & WALKS – ARBORETUM • GARDENS AND PRAIRIES OF MISSOURI ARBORETUM • WOODLAND GARDEN DEMONSTRATION
SMITHSONIAN WEEK MAY 11-19 • WOODLAND GARDEN DEMONSTRATION • MOTHER'S DAY AT THE GARDEN	12	KITCHEN BOTANY THE ART OF USING PLANTS • SPRING WILDFLOWER WALKS – ARBORETUM	14		ACCLIMATIZATION BASIC WORKSHOP 16 MAY 16-18	NATURAL HISTORY TOURS ARBORETUM • FAMILY WALKS AT THE ARBORETUM • GIANT CACTI EXHIBIT MAY 17 – JUNE 15
ST. LOUIS HORTICULTURAL 18 SOCIETY SHOW MAY 17 – 18		KITCHEN BOTANY THE ART OF USING PLANTS • SPRING WILDFLOWER WALKS – ARBORETUM	21	22		NATURAL HISTORY TOURS – ARBORETUM • FAMILY WALKS AT THE ARBORETUM • WALK THROUGH THE JAPANESE GARDEN
25	26	KITCHEN BOTANY – THE ART OF USING PLANTS 27 SPRING WILDFLOWER WALKS – ARBORETUM	28	29	30 MUIR TREK MAY 30 – JUNE 1	ROSE SOCIETY SHOW 31 HERB GARDEN DEMONSTRATION



JUNE

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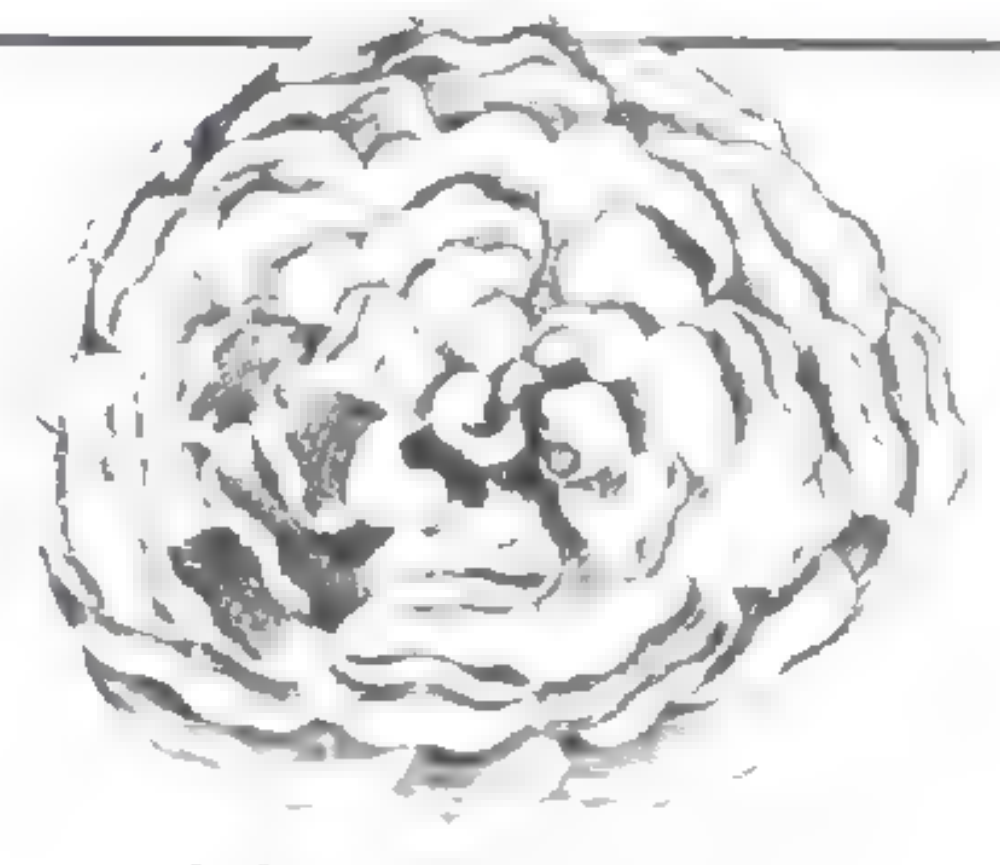
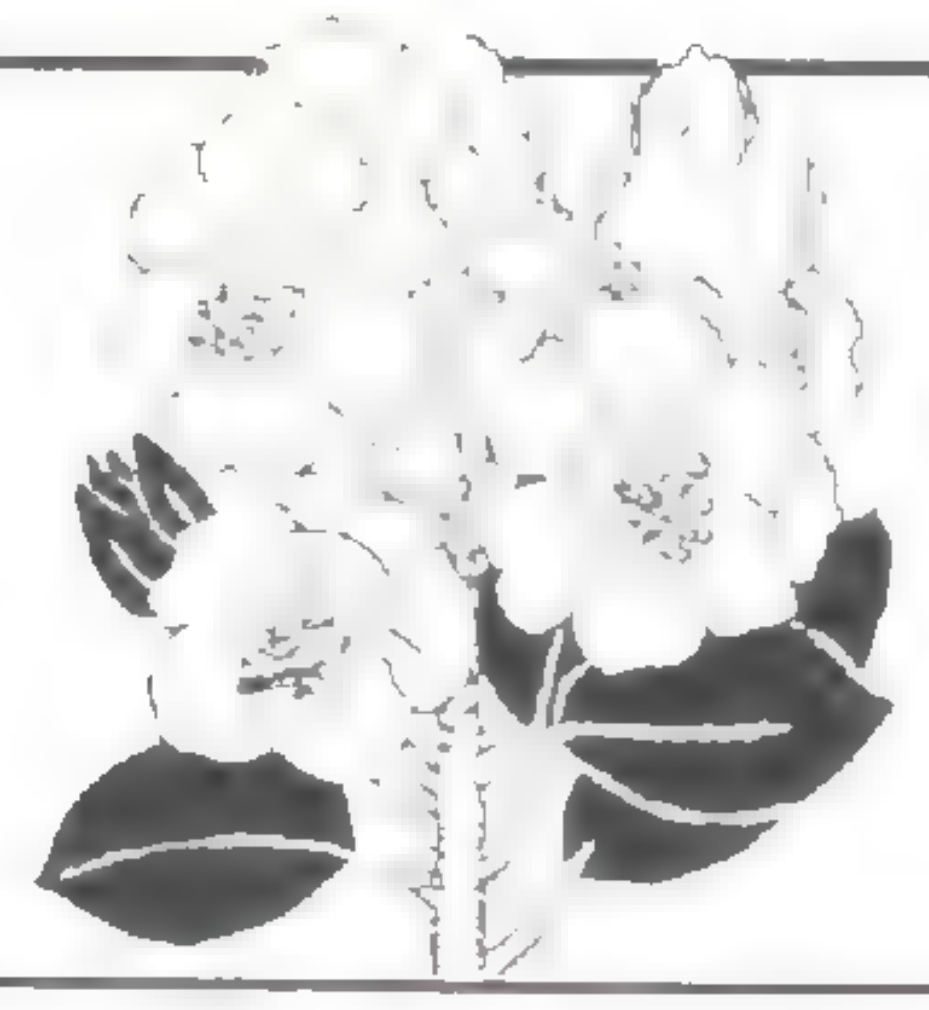
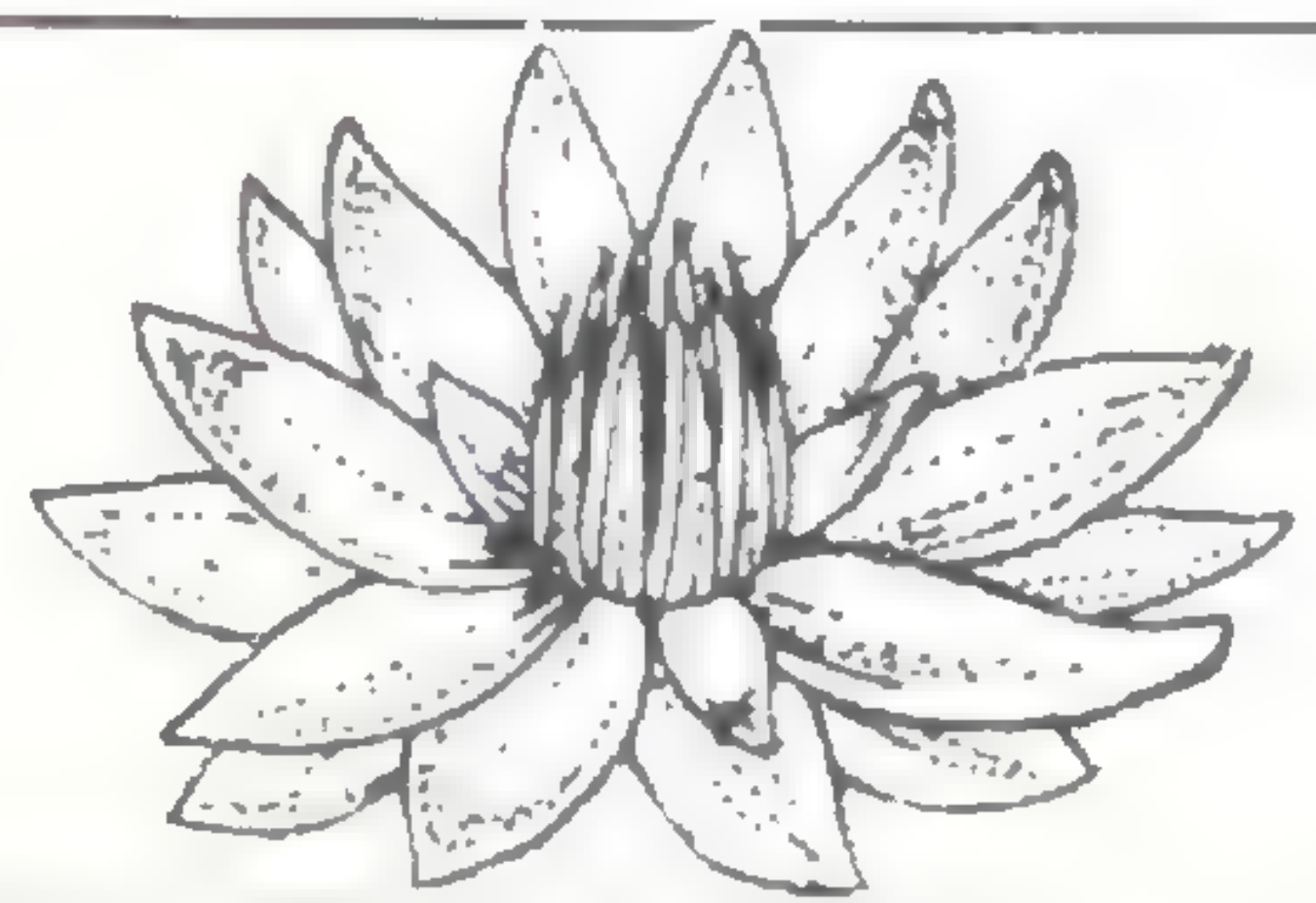
HERB GARDEN DEMONSTRATION 1 ROSE SOCIETY SHOW	2	3 EVENING WALKS IN THE JAPANESE GARDEN	4 EVENING WALKS IN THE JAPANESE GARDEN	 ROSE EVENING	6	DYEING WITH NATURAL MATERIALS • FAMILY WALKS AT THE ARBORETUM • PRAIRIES OF MISSOURI TRIP
8 PRAIRIES OF MISSOURI TRIP	9	10	11	12		MERAMEC RIVER INTERPRETIVE FLOAT TRIP • ROSE CARE CLINIC • FAMILY WALKS AT THE ARBORETUM
MERAMEC RIVER INTERPRETIVE FLOAT TRIP 15 ROSE CARE CLINIC	16		18	19	20	JAPANESE FESTIVAL WEEK 21 JUNE 21-29
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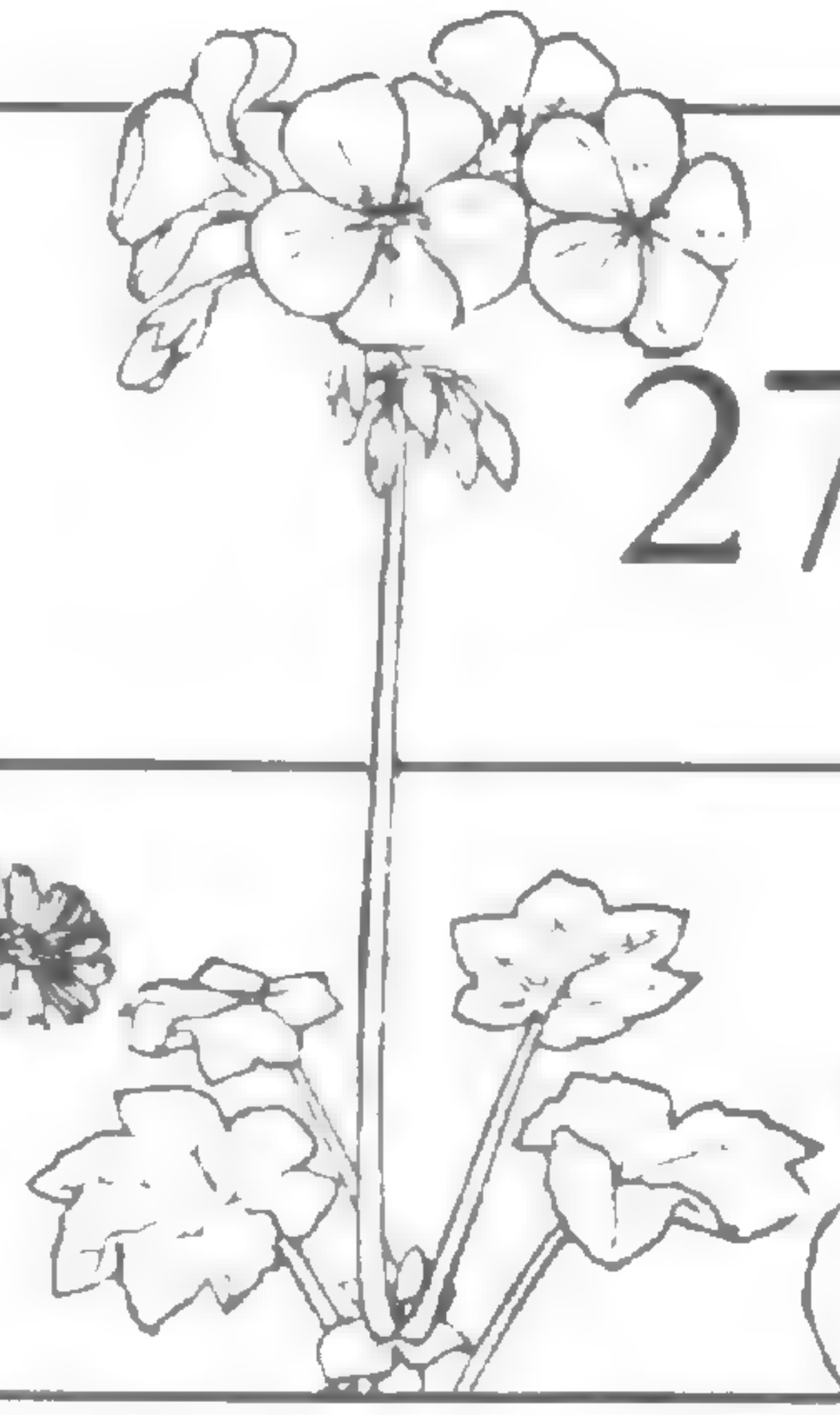
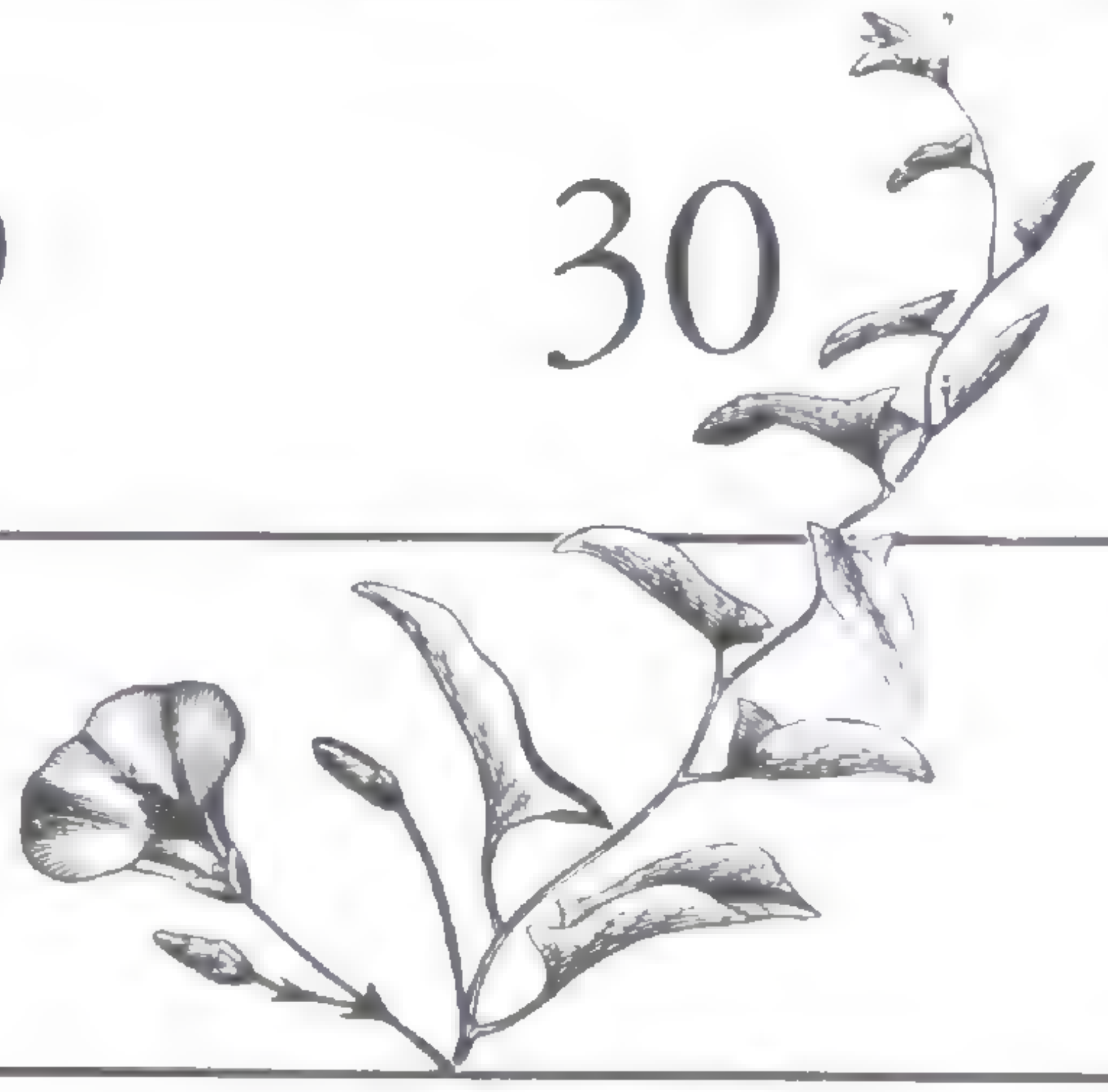
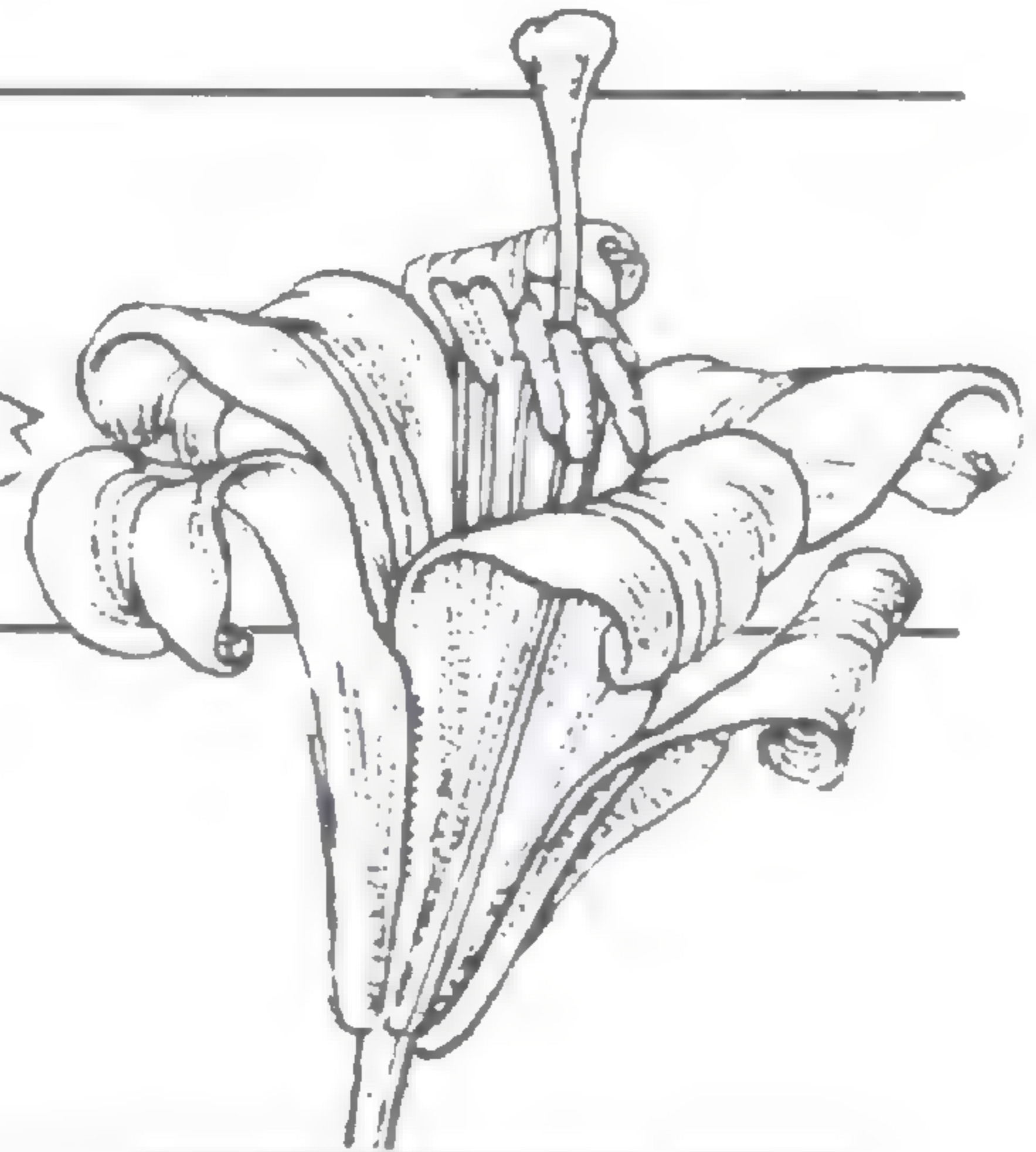
29	30	31				





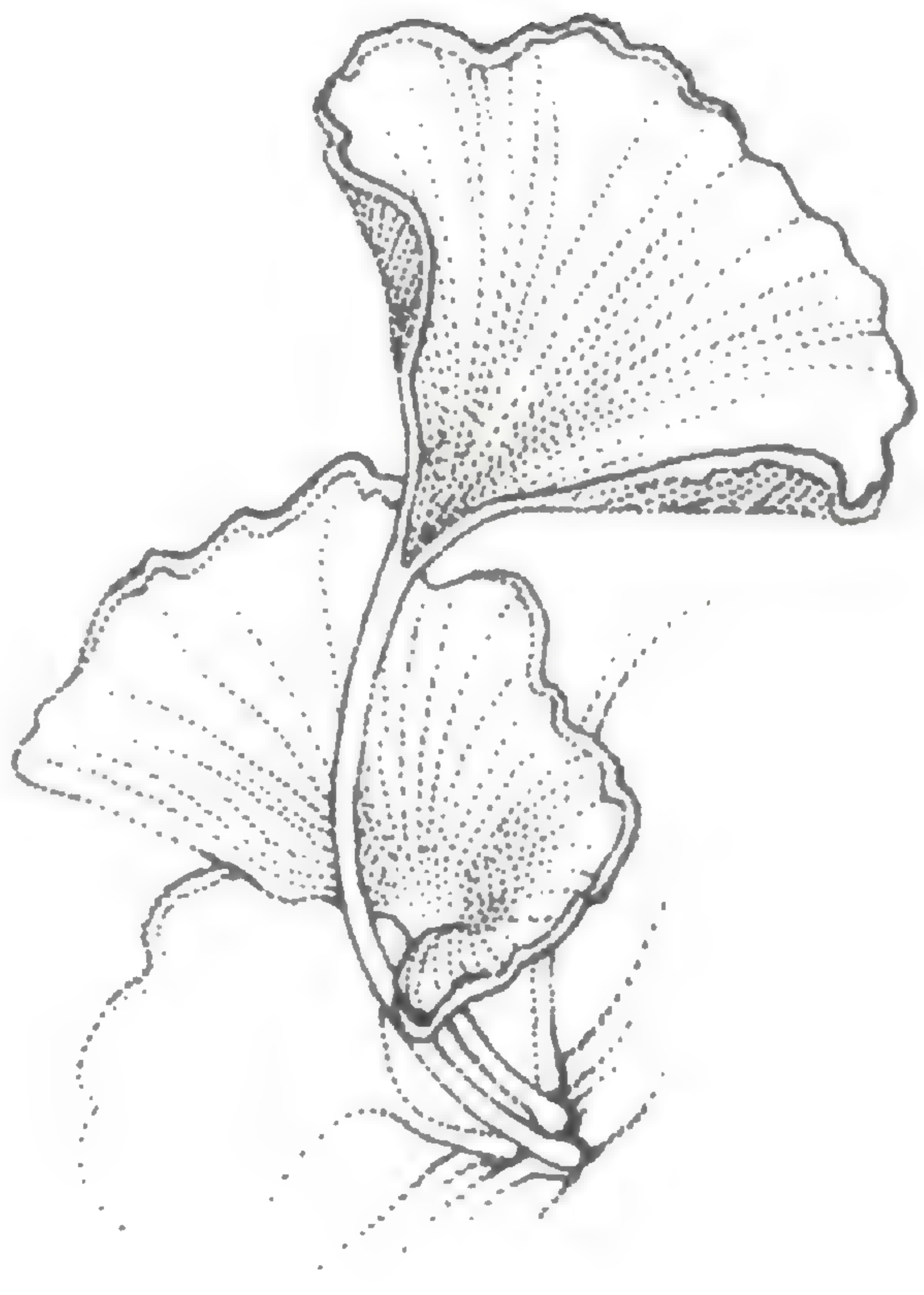


FOR FURTHER INFORMATION CALL: PUBLIC RELATIONS DEPARTMENT

A Living Fossil: *Gingko biloba*

The ancestry of the Gingko can be traced to the Paleozoic era, 220,000,000 to 600,000,000 years ago and, like cycads, it may truly be called a living fossil and, as such, represents the only living member of the order Gingkoales. This living fossil retains the swimming sperm which characterize the ferns and which may well have characterized all Paleozoic seed plants. Few other trees can trace their ancestry as far as *Gingko biloba*. It is doubtful that it exists today in a wild state, though claim have been made that it has been found growing wild state, though claims have been The Gingko was spared by priests in China and Japan, who cultivated it on their temple grounds. This is an adaptable tree, which accounts for its survival. It was reintroduced into worldwide cultivation from China during the 18th century, first to western Europe and later to the Americas during the Colonial period.

Gingko biloba is commonly called maidenhair tree because the leaves of the tree look like a much expanded leaflet of the fern *Adiantum pedatum* or maidenhair fern. The similarity holds even to the veination pattern which in the Gingko is formed by two vascular strands in the petiole (leaf stem), each by repeated dichotomes forming the veination of its side of the leaf; hence the specific epithet of biloba referring to the two lobed nature of the leaf.



The Gingko is a beautiful tree having characteristically a strongly excurrent habit (pyramidal shape) when young, but with maturity at 50 or 60 years, it tends to broaden to a rather round-headed shape, a good example of the fourth dimension in landscaping, that of "time". Seed-grown selections are available but not advisable inasmuch as it is impossible to determine if the plants are staminate (male) or ovulate (female) until such time as they bear "fruit", which are technically naked seeds borne within a fleshy outer covering. The seed-bearing trees have two undesirable factors relative to the fruit: 1) The fleshy outer covering upon decomposition has a high content of butyric acid, the scent of which is likened to rancid butter. 2) The fleshy seedcoat presents a hazard to pedestrians in urban and park settings due to its extremely slippery nature. There is a way around these problems with staminate cultivars (selected clones) which have been propagated vegetatively, i.e., by cuttings or grafts. These include 'Autumn Gold', 'Lakeview', 'Mayfield', and 'Santa Cruz'. There is also a fastigiate (columnar) form called 'Sentry' which is useful in restricted spaces such as street tree plantings.

The bare structure of Gingko Biloba *stands out against the sky.*

Several factors have helped in the persistence of the Gingko, not the least of which are remarkable resistance to insect and disease problems coupled with tolerance to atmospheric pollution. This in turn makes the Gingko an excellent choice for urban situations. Lastly, this remarkable living fossil has a beautiful fall color of rich butter-yellow. Several mature specimens may be seen on the grounds of Missouri Botanical Garden that date from the time of Henry Shaw. A lovely, broad-spreading specimen may be seen on the eastern side of the Anne L. Lehmann Rose Garden.

— Alan Godlewski
Chairman Landscape Horticulture

Volunteers, events and roses . . . . . .

Nan Day in action teaching attentive students.

Whether the job at hand is leading a tour of senior citizens or teaching horticulture to grade school children, Nancy Day (Mrs. Henry P.) is proficient, and at ease. Volunteer somehow does not seem an adequate description for this woman who has been so much a part of the Garden since 1971.

That year Nan started as a guide, a function she has continued to serve. During three of those years she served as Guide Chairman. While serving in that capacity, she also became one of the first volunteer instructors. She also recruited others to the program.

In addition to her teaching talents, Nancy is an excellent researcher and writer. She has designed a tour of Missouri trees. She is always an excellent resource person as she seems to have a limitless fund of knowledge on many subjects.

Her enthusiasm for natural history and horticulture seems to be infectious. Children who are noisy, full of energy and chattering away, quickly fall quiet to listen to Nan Day. Ken Peck, with whom she has worked in education sighs and says "We couldn't manage without her."

Volunteers and roses — a special evening is being planned to salute in Garden volunteers. This event is being planned in mid-June so that the guests may enjoy the roses at this lovely time of day. Details will follow in a special invitation.

Plant Profile: The Rose

If there is a flower for the month of June, the odds-on favorite has to be the rose. The Anne L. Lehmann and the Gladney rose gardens will be resplendent with flowers during the month.

To celebrate the event, Rose Evening will be held on June 5 from 6:00 p.m. to 7:30 p.m. This is a special event for Members and their guests.

The rose is the world's oldest cultivated ornamental. Scientifically it is related to the strawberry, raspberry, blackberry, apple, pear, peach, apricot and plum. Its blossoms are unparalleled in color and fragrance.

Fossilized evidence dates the rose to between 35 and 70 million years. The history of its cultivation can be traced to rose-relief minted coins in Central Asia in 4,000 B.C. The rose can be traced through history as an ornament and a medicine in the culture of ancient Greeks and Romans and as an emblem of the early Christian church.

By the early 1800's there were many varieties under cultivation. Today the number is greater and continues to grow.

At the Garden there are 5,000 examples of 200 species. Newly developed roses are included in this collection. As a part of the All America Rose Test Selections system, the Garden is one of only a few test centers. Here roses are planted for a two-year period for fragrance, hardiness, disease resistance and color being being made commercially available to the public. Of the 40 or 50 varieties planted each year, only two or three are usualy award winners.

Each year the winners are planted in the Garden's permanent collection and can be inspected a year before they are available for public sale.

The rose is certainly a flower of beauty and charm.

News Notes

The Smithsonian Institution in cooperation with the Missouri Botanical Garden, St. Louis County Parks and Recreation, Friends of Laumeier Sculpture Garden, Museum of Transport Association, St. Louis County Historical Buildings Commission, McDonnell Planetarium and Missouri Historical Society has planned a special series of events beginning Sunday, May 11, 1980. The events are open to all who register. A separate mailing will list all events.

There will be two lectures in the John S. Lehmann Building Auditorium on May 11. *The Horticultural Extravaganza of the Victorian Era* at 2:00 p.m., and *Orchid Collecting in Panama* at 4:00 p.m.

There will be special behind-the-scenes tours of the library, herbarium, and greenhouse facilities as well as the Climatron and outdoor tours. Other events will take place at several locations throughout the week.

Watch the mail for the special brochure describing all of the events from the Smithsonian.

Want to fly a kite? The Garden Gate Shop has a large selection of unusual kites – this one featuring a lavendar thistle on a dark background. You'll also find dragons, as well. Gifts, books and things for summer are all in the Shop.

* * *

The Botany department has received an award from the National Retired Teachers Association of Retired Persons: Senior Citizens Service Employment Program in recognition of the Garden's participation in the agency program. Several of the plant mounters working in the herbarium came to work here under the auspices of the SCSEP.

The award was accepted by Marion Albright, mounting supervisor, on behalf of the Garden.

* * *

The Garden library adds many new titles to its shelves each month. Many of these books are highly scientific and technical, but many are acquired for our membership.

Carla Lange, assistant librarian, has provided brief reviews of four new books she feels would be of interest to our members.

Curtis' *Wunderwelt der Blumen,* with 120 illustrations from the famous Curtis' Botanical Magazine for the years 1787 to 1807 with new descriptions by Tyler Whittle and C.D.K. Cook, published by Edition Colibiri, Bern, Switzerland in 1979. The illustrations in this work are 'faithful' reproductions from the original copperplates, all handcolored, used by William Curtis in his Botanical Magazine. The plates are accompanied by a description of the plants, their synonyms from the pre-Linnean era, their origin, time of flowering and tips for their cultivation.

Nature into Art — A Treasury of Great Natural History Books by Handasyde Buchanan, published by Weidenfeld & Nicolson in London in 1979. The beautiful plates in this work are reproductions from old natural history books published between 1700 and 1900. They are a selection of the best illustrations of birds, flowers, fruits, trees, gardens, animals, fish, insects and shells taken from these books. As the author says in his introduction 'All the plates in this book are intended to be enjoyed as things of beauty'.

The Natural History of the Land of the Bible by Azaria Alon, published by Doubleday & Co. in 1978. The beautiful black and white and colored photographs in this work give a lively account of the fascinating flora and fauna of the lands of the Bible.

Voice for the Earth, edited by Ann Gilliam and published by Sierra Books in San Francisco in 1979. Here the reader will find highlights from nearly nine decades of Sierra Club writings which advanced the cause of environmentalism. *Voices for the Earth* represents a history of the conservation efforts in North America.

The library is open to Members 9:00 a.m.-5:00 p.m. Monday through Friday.

* * *

The sixth annual Shaw Neighborhood Spring House Tour will take place on May 3 and 4 from 10:00 a.m. to 4:00 p.m. This years tour will highlight architecture, design and lifestyle in the neighborhood. For ticket information call 771-3101.

Gardening in St. Louis

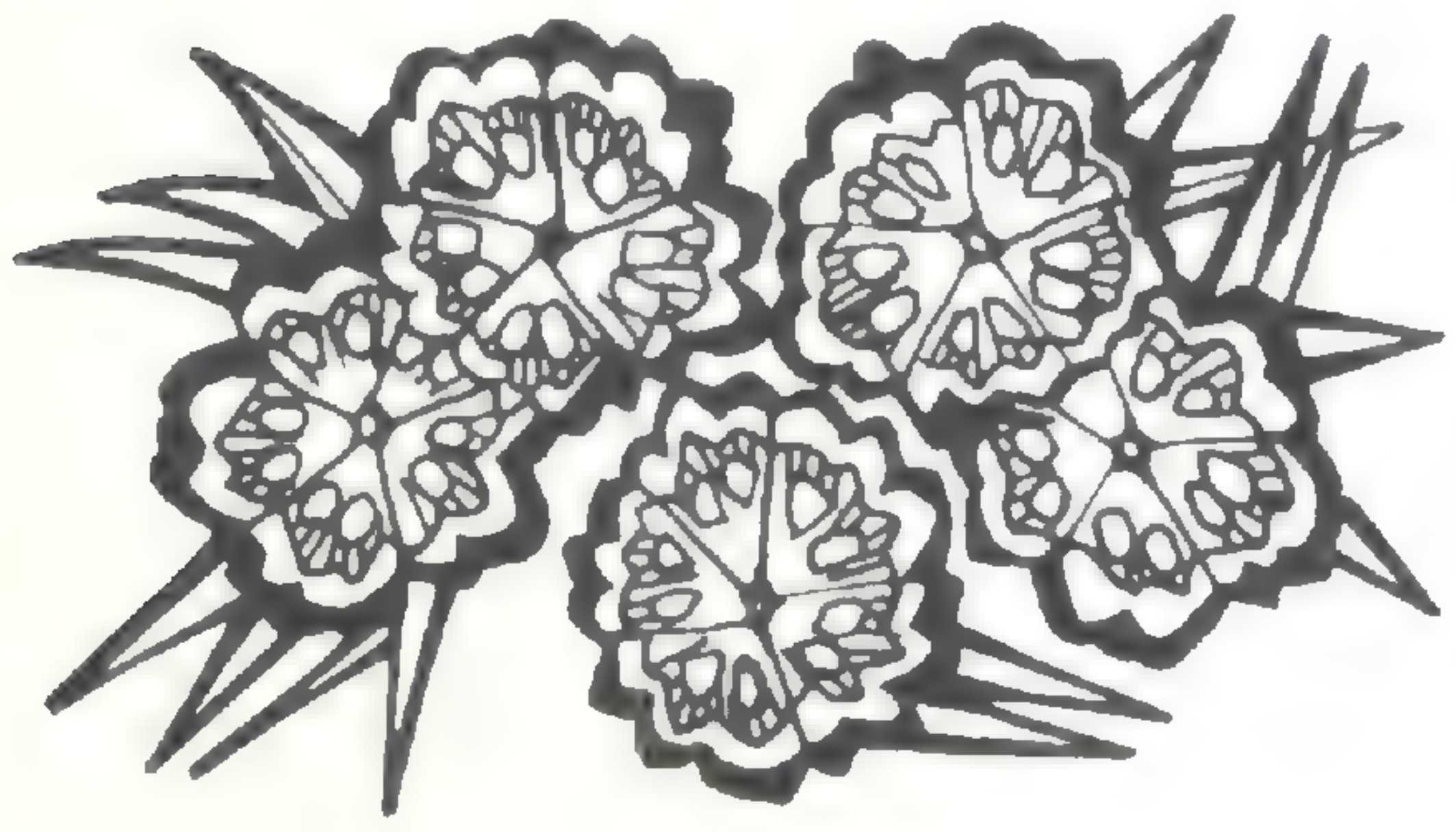
Nature seems to have been storing up all of her bounties for the months of May and June. The birds are busily making their nests or finishing them — their songs and twitterings fill the warm air. Flowers seem to abound and scent the breeze with a multitude of fragrances. The busy time of the year for the gardeners is here!

Bulb Care

A well balanced fertilizer should be applied to early flowering bulbs. This is the time when these bulbs build up energies for next blooming season. Allow the foliage to mature and die down before removing.

It is a good idea to mark the location of the bulbs with stakes. When annuals are interplanted you can avoid the bulbs. If transplanting bulbs to another location, dig up and heel into the ground in an area of the garden where they are out of sight. When foliage has matured, dig up bulbs, clean and store in a cool, well ventilated area until planting time in the fall.

Gladiolus corms can be planted every two weeks until early July to extend the flowering period. These plants often need to be staked against the wind. Other tall plants may also require staking.



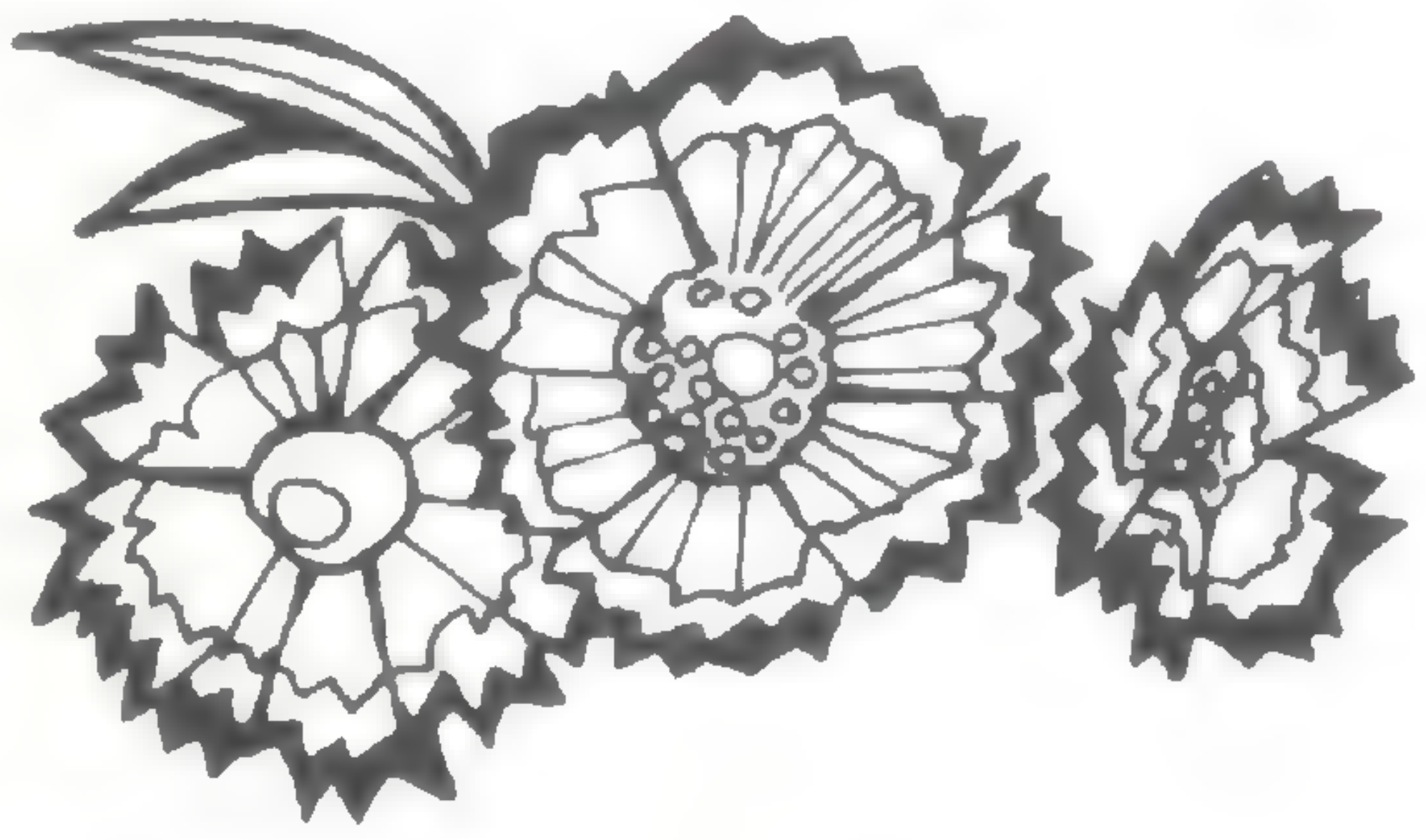
Vegetable Garden

More and more gardeners are devoting their efforts to the vegetable garden this year. Spiraling food costs make the time investment well worth the effort.

May should make those efforts begin to show. Warm weather plants such as tomatoes can be planted after May 10th. Seeds can still be planted. As early crops mature, plant new crops close by. This makes best use of space.

Mulch plants and pathways. The mulch will conserve moisture and also make the garden accessible in wet weather.

Keep a close watch for insect and disease problems and treat immediately. Water as needed, keeping in mind that when doing so water well.



Rose Care

To insure vigorous rose bushes, fertilize in early May if you haven't applied it earlier. Start a regular spray and/or dusting program; be certain to cover the underside of the leaves in the process.

All of these efforts will be repaid in full in June when the bushes will flourish and produce flowers in abundance.

House Plants

Begin to move indoor plants outside as temperatures stabilize. Harden them off slowly by placing the pots in a protected area for a few days before moving to their permanent location.

The pots can be sunk into the garden border in a semi-protected area or placed above ground as desired. Water and fertilize on a regular schedule. Check closely for pests and diseases and treat accordingly. Plant will flourish outside — new growth will soon be apparent.

Odds and Ends

Add color to borders and beds by planting annuals. Water well with a diluted soluble fertilizer after planting and keep pinched back to encourage fullness. It is helpful to transplant on a cloudy day so that shock is minimized and additionally protect from the sun for a few days.

Annuals not only add color, but are good for cutting. Don't forget to plant a few extra plants for that purpose. Annuals planted in pots also provide portable color. A few large containers, some hanging baskets and even a few vegetables in containers add color and interest.

Watering may be on your list of tasks if rainfall is not sufficient. When watering becomes necessary — water well, not just a sprinkle. The amount should equal two inches of rain and can be measured by a can placed in the sprinkler path. With a thorough watering you won't have to repeat the process for 10 days to two weeks. Early morning is a good time to do this so that the leaves dry off before evening. Early morning is a good time for all gardening chores.

— Barbara B. Pesch

~

Members' Trip – Pacific Northwest

A special trip has been organized for Garden Members to tour gardens of the pacific northwest. Several private gardens, not open to the public, are a part of this trip.

Alan Godlewski, Chairman of Landscape Horticulture, will be the Garden representative. Since Mr. Godlewski has lived on the west cost and traveled extensively in that area, he will provide expertise on the plants and gardens to make this trip very special.

Mr. Godlewski has personally made arrangements for the private garden tours. Additional highlights include the ferry trip to Victoria, Butchart Gardens, Vancouver and Mt. Rainier National Park.

The trip begins August 25 and ends September 2, 1980. For a detailed itinerary please call the Members' Office: 577-5118.

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NEW SUSTAINING MEMBERS

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Miss Wilma Mueller
Mr. Edward R. Spence
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MARCH

In Honor of Jane Coultas
Mrs. Gene S. Smith

In Honor of Mr./Mrs. Whitney Harris Anniversary
Ben and Phyllis Adler
Mr./Mrs. S. E. Freund

In Honor of Meyer Levy's 80th Birthday
Janet and Clarence Mange
Bert and Margie Talcoff

In Honor of Mrs. Sheridan K. Loy's Birthday
Mr./Mrs. Caroll F. McMahon

In Honor of Mr. Michael Pulitzer's 50th Birthday
Dodie and Bud Brodhead, Jr.

In Honor of Mrs. William Schield's Birthday
Mrs. Norman C. Wolff, Jr.

In Honor of Mr./Mrs. Willard B. Shelp, Jr. 60th Wedding Anniversary
Mrs. Ralph F. Piper
Dorothea Seibel

In Honor of Mr./Mrs. Harry Steiner's Anniversary
Mr./Mrs. Leon Bodenheimer

In Honor of Tribute Fund
Edith Alexsevitz

In Memory of Clarice Augusta Anderson
Philip E. Graham

In Memory of Alan Baer
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Mr./Mrs. Joseph W. Lewis
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In Memory of Mr. Harry W. Doerschlen
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The Saturday Night Dinner Bridge Club

In Memory of Gwendalyn Krai
Mr./Mrs. Arthur Haack

In Memory of Mrs. Harry H. Langenberg
William Pagenstecher

In Memory of Mrs. Virgie Lay
Town South Garden Club #1

In Memory of Mr. John D. Lodwich
Mrs. Albert Krueger

In Memory of Walter W. Lorch, Jr.
Edwin R. Waldemer

In Memory of Aunt Lilla
George S. Metcalfe Family

In Memory of Mr. Sam Magita
Inez Bacon
Mrs. Martha Gatz
Mrs. Alta Hamilton
Mrs. Pete Hobson
The Ikebana International — St. Louis Chapter
May Killian
Merna MacBride Lazier
Rock Hill Garden Club Group I
Al and Elinor Schrode
Mrs. Viola Story
Diana Yip

In Memory of Willa Morris
Mrs. Marilyn Drennan

In Memory of Louise Mental
Mr./Mrs. Arthur Haack

In Memory of Mr. Lee Parker
Joe and Peggy Tucker

In Memory of Maxine Rosen
Bert and Margie Talcoff

In Memory of Mr. Marvin M. Schramm
William Phillips

In Memory of Mrs. Bruce Seddon
Mr./Mrs. P. Taylor Bryan, Jr.

In Memory of Walley Silvey
Dr. and Mrs. Ted Okamoto

In Memory of Miss Margaret Shapleigh
Ross A. Woolsey, Jr

In Memory of Charles H. Sommer
Mrs. John H. Hayward

In Memory of George W. Spangenberg
Mrs. Burchard Neel, Jr.

In Memory of Miss Olivia Vogel
Mrs. O. J. Habermaas

In Memory of Arthur William Weber
Garden Appreciation Club

In Memory of Lee Wibbenmeyer
Mr./Mrs. Clarence E. O'Radnik

In Memory of Mr. James H. Williams
Whitehall Club

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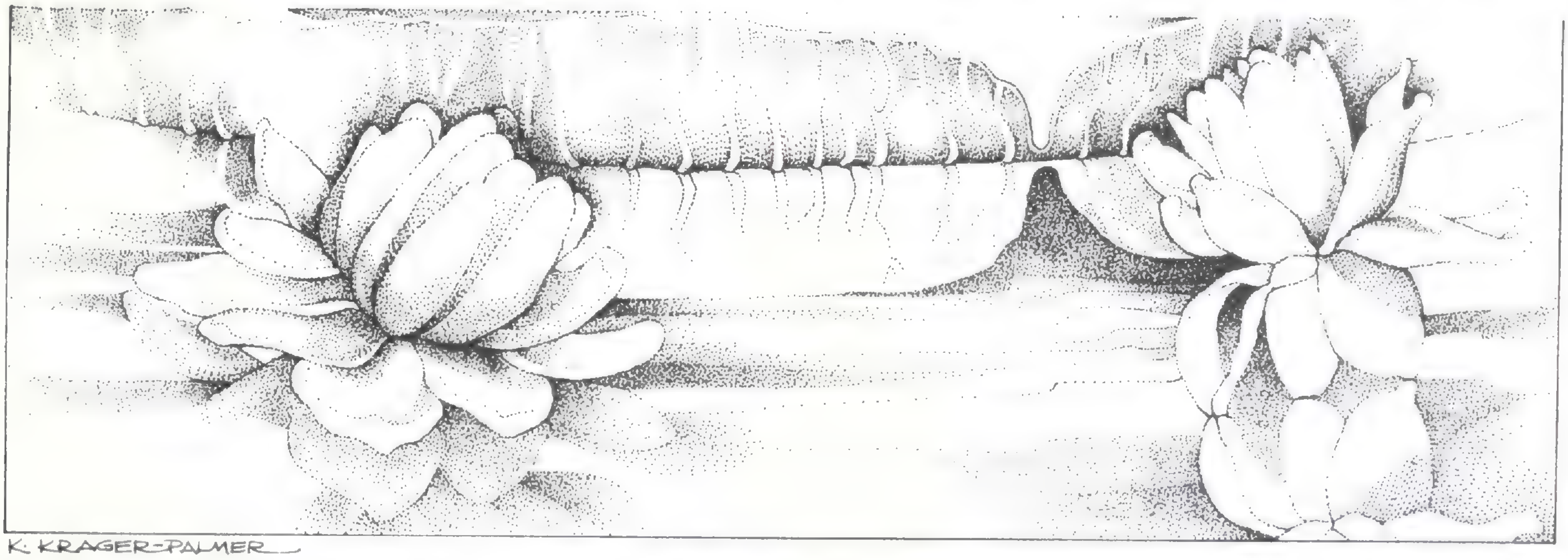
Missouri Botanical Garden Bulletin

Volume LXVIII Number 4
July/August 1980

Tropical Giants – Victorias Bloom



K. KRAGER-PALMER

Water lilies and Garden history are intertwined. Dating from 1894 Dr. William Trelease noted in his annual report of that year how the new "Victoria Pool" for tropical aquatic plants had been constructed in front of the Linnaean House. The pool was heated and water circulated.

When the Victoria lilies bloomed for the first time in St. Louis there was a special evening reception with emergency illumination set up for the event. Public attendance that year grew by one-third because of the frequent newspaper references to these tropical giants.

Newer hybrids are much easier to grow. The Longwood Hybrid resulted from the close collaboration between the late George Pring at the Garden and his son-in-law, Dr. Russell Siebert, who was then Director of Longwood Gardens, Kennett Square, Pennsylvania. Shortly after these gardens were open to the public Mr. Pring was called there for four months as a consultant on water lilies. New pools were constructed especially designed for Victorias. This unique set-up made conditions possible for growing both *Victoria amazonica* and *Victoria cruziana*.

Both flowered and set seeds which made it possible for Mr. Pring to carry out his project of raising a hybrid between the two. *V. cruziana* was more adaptable to outdoor pools while *V. amazonica* had much larger leaves. The Victorias in the central pool at the Garden are the results of this cross.

Victoria water lilies are native to the big river systems of South America. First reports of their sightings drifted back from Bolivia in 1801. *Victoria amazonica* was found in sluggish rivers and associated lagoons in shallow water. The native name, "Yrupe," roughly translates to water platters which the giant leaves resembled. Thanks to the English, however, whose pride in their queen convinced them to dub the giant, *Victoria regina.*

It was almost half a century after *Victoria amazonica* was discovered in South America before it was grown and flowered in England. First attempts met with failure after failure but persistant efforts finally paid off in success by 1850.

As soon as seeds were available, *Victoria amazonica* was flowered in the United States where our hotter and longer summers made this less of a feat than in England.

Many of the early growers of this giant were more impressed with the parts of this plant that were hidden rather than the spectacular visible portions. The upright rims are visible, but the supporting structure beneath is not. The underside of the Victoria leaf looks like a geometrical diagram in three dimensions. It is light, strong, graceful and surprisingly stiff for something made up of such flexible materials. The main ribs radiate from the leaf stalk with branching and rebranching in almost mathematical regularity. Smaller side ribs connect the main

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Dr. Peter H. Raven,
Director

Comment—

Dr.
Peter
H. Raven

The British Museum is one of the most influential cultural institutions in the English speaking world. It was opened to the public in 1759. In 1881 at about the time the Missouri Botanical Garden was taking shape, the Museum's natural history department housing its work in Zoology, Mineralogy and Botany was established at South Kensington. The Museum's collections, it's research, and its publications can only be described as outstanding.

In June the Garden introduced a series of magnificent wildflower posters which are a joint project with the British Museum. When the Museum's own posters of British wildflowers proved to be so popular, the Museum Publications Department asked if the Garden would be interested in jointly publishing a similar series on North American wildflowers. We of course agreed, and the first four prints are now available in what will be a series of sixteen.

The Museum asked if we would recommend an artist to do the plates. Tamra and I have worked with New Zealander Keith West for many years and we knew he would be the best possible person. Fortunately, Keith agreed to give up his position with the Department of Scientific and Industrial Research and to devote full time to researching and preparing the plates.

The results are striking. The first four plates are on display and may be purchased at the Garden Gate Shop.

Peter H. Raven

Letter from Panama

It all began in 1920 when George Pring stopped briefly in Panama on his return from South America on an orchid collecting expedition. He met a private collector of orchids there and took over his collection. A permanent station was established in the former Panama Canal Zone, and the Garden managed and developed it until 1939, when it was returned to the Canal Company. This station served both horticultural purposes and as a base for making the Garden's first scientific collections in Panama.

1980 marks the completion of the Garden's most important research effort to date, the Flora of Panama, which we began publishing in 1943. To commemorate the occasion, the Garden cosponsored a symposium entitled "Botanica e Historia Natural de Panamá" — The Botany and Natural History of Panama — from 14-17 April in Panama City. The purpose of the meeting was to bring together researchers and students from all over the Americas to report on and discuss their work on all aspects of Panama's natural heritage. Several hundred people from a dozen countries attended.

In 1969 the Garden established a new permanent station in Panama, and since that time one of the Garden's staff members has always resided in Panama and collected plants full-time for the Flora of Panama project. A full-time resident collector now easily collects 10,000 new specimens of plants *each year.* We now estimate that something on the order of 200,000 separate collections have been made from Panama, 20 times the number on which the Garden planned to base the Flora. Yet, we are still finding new records for the country and new species to science.

The published Flora will contain some 7,000 printed pages which describe, discuss, and illustrate about 5,000 species or kinds of plants which occur in Panama. A bound set of the Flora occupies about four feet of bookshelf space. But we now estimate that there are between 8,000 and 10,000 species of plants actually in Panama, based on the results of the past ten years of intensive collecting there. Because we know that virtually all of the forests of Panama will be destroyed in the next 20-30 years, we are now concentrating our efforts in additional collecting in Panama rather than producing a revised edition of the Flora. If we do not collect the plants soon, most of them will be extinct, and it will never be possible to collect these interesting and potentially important plants.

Dr. Marshall R. Crosby

At the keynote address during the final evening of the Symposium, the Garden's director, Peter H. Raven, summarized the reasons for the need for continued botanical exploration in Panama: "The moist forests that still persist in portions of the Republic are inhabited by the richest and most diverse array of plants and animals of the entire Central American region. Some of them might be useful directly as sources of human food, shelter, energy, medicine, or for other purposes, but the only hope of discovering the extent to which this may be true will be to survey these forests biologically as rapidly as possible and to concentrate in the course of these studies on groups of organisms of known or suspected economic importance."

"Both the citizens of Panama and those who live elsewhere have genuine reason to applaud the establishment of the Darien Frontier National Park and the Strategic plans that are being developed for the proper management of this area under the guidance and supervision of Ministerio de Desarrollo Agropecuario-Direccion National de Recursos. The cooperation between Panama and Colombia that has made possible the progress to date has also been evident in the development of the 200,000 hectare Parque de la Amistad on the Cordillera de Talamanca between Panama and Costa Rica. Of equal importance are the efforts to reforest large denuded sections of the Panama Canal, and for the management of the Volcán Barú park, including the integral management of the Río Caldera watershed."

The Garden was joined in its sponsorship of the Symposium by the University of Panama, several Panamanian governmental agencies including INAC, RENARE, and IRHE, and the Smithsonian Tropical Research Institute. The Garden's cosponsorship of the Symposium was aided by grants from the National Science Foundation and the Joyce Foundation, Chicago.

The Garden and the University of Panama plan to use the information from the numerous papers presented to produce a semi-popular volume in Spanish concerning the natural history of Panama. This well-illustrated volume will be widely available in Central America and should both inform the public there about their natural heritage and stimulate further interest in its study and conservation.

Dr. Marshall R. Crosby
Director of Research

Legislative Report

The Missouri House of Representatives, during its most recent legislative session, passed a bill which would have allowed the voters to add a Botanical Garden Subdistrict to the Zoo Museum District which could provide support to the Garden.

The State Senate, however, was unable to deal with the legislation prior to the adjournment of the 1980 General Assembly session. Although indications were that the matter would have passed there also, a crowded legislative calendar made it impossible for the Senate to act upon the bill before the session closed. The matter, therefore, is effectively closed for 1980.

Dr. Peter Raven, Director of the Garden, said, "The Garden very much needs public support to supplement our income from gifts, memberships, endowments, and other sources if we are to continue to maintain our high quality displays and to provide the educational and other services we do. We are looking forward to reintroducing the bill in the 1981 legislative session."

The MISSOURI BOTANICAL GARDEN BULLETIN is published six times each year, in January, March, May, July, September and November by the Missouri Botanical Garden, P.O Box 299, St. Louis, Mo 63166. Second class postage paid at St. Louis, Mo. $5.00 per year $6.00 foreign.

Tropical ... *Continued from Page 1*

ones. There is almost a perfect design.

Joseph Paxton designed a greenhouse for lilies using the principles of design of the Victoria for the structure itself. The Lily House was built in Chatsworth, England. There Victorias and other aquatics flourished.

From these beginnings Paxton dreamed up the crystal Palace which was to house the Great Exhibition of 1851. The Lily House was the model. It covered 18 acres and was large enough to house a large elm tree, beds of flowering trees and shrubs, exhibits and a second story promenade. Paxton gained international fame in his day, but the design was not imitated.

Paxton's curiosity about the leaf structure indicated that these leaves could support weights of up to 300 pounds. This fact led to the photographing of people standing on a framework of thin boards on top of the leaves.

The flowers of the Victorias are unique. When they first open there are fifty or more petals held gracefully erect. These magnificent flowers are fragrant.

These unique plants are always the subject of visitor's curiosity. Along with the many other water lilies that grace the pools by the entrance, the flowers scent the air during the summer months and speak to the history of people such as George Pring, and Lad Cutak who spend so much time studying and hybridizing these lovely plants.

* * *

Peter H. Raven, Garden director has been elected a foreign member of the Royal Danish Academy of Science and Letters.

Special Places... Special People

Shaw Arboretum, located in Gray Summit, offers unique Ozark landscape to explore. Spring and fall walks led by volunteers highlight the Arboretum programs.

Shaw Arboretum is a very special place. Throughout the year it offers treasures to those who walk its trails. Spring brings daffodils around Pinetum Lake — these stately flowers blow in the spring breezes. Then in progression bloom daisies, black-eyed Susans, milkweed, butterfly weed, and other meadow flowers.

Late summer and fall bring the golds, rusts, reds and browns to the leaves. Accents are provided here and there by patches of blazing star, goldenrod and aster. Berries provide color and food for the plentiful wildlife.

Winter adds snow to the trails and provides a perfect setting for the cross country ski enthusiasts. The winter landscape provides scenic beauty that is not available at other times.

Tranquility is always present. Even though the Arboretum lies only 40 minutes or so west of St. Louis, it is in the midst of the rolling Ozark foothills. As a visitor, you feel far removed from the bustling urban areas.

Special places attract special people. Three of these lead wildflower walks in the spring: Art Christ, Betty Nellums and Nell Menke. No matter what the weather all three arrive spring and fall — hot or dry, cold or wet, to conduct the walks.

Often they will arrive the day before to comb the Arboretum for plants of interest. All are thoroughly knowledgeable about Missouri wildflowers.

In addition to the spring and fall walks, an important part of the Arboretum's educational programs, all three have participated in the prairie project. Members' days, seed collecting and just about anything to help preserve the delicate nature of the Arboretum ecosystem.

As such a special place, the Arboretum has many facets and many areas in which volunteers can make a contribution.

For further information call 577-5187.

A New Collection...

There is something fascinating about plants that eat animals (usually insects). Maybe it is because these carnivorous plants present such an incongruous turning-of-the-tables. All of us have had problems with bugs munching on our favorite plants, but to have plants that "feed on insects" is a welcome, but totally unexpected, change of events. Maybe it is also the intrigue caused by stories of jungle explorers discovering mythical man-eating plants. For these and other reasons, more and more people are becoming interested in how these plants function and grow.

The three most common and interesting carnivorous plants are the Sundews *(Drosera* species), the Pitcher Plants (mostly *Sarracenia* species), and the Venus's flytrap *(Dionaea muscipula).* Sundews are usually small, delicate plants. Their name is derived from the fact that the red tips of the tentacles of the leaves are covered with a sticky material which glistens in the sunlight like dew drops. This clear, stiff, sticky mucilage produces an odor that lures insects to land on the leaf. When the insect lights on the leaf, it becomes mired in the thick mucilage. As the insect struggles, more fluid is released, until the victim succumbs by drowning. The plant then proceeds to digest the insect.

Most pitcher plants are natives of North America and are members of the genus *Sarracenia.* Some unusual pitchers from tropical countries belong to the genus *Nepenthes.* All pitcher plants have a modified leaf which forms a vessel for holding prey and digestive juices. The rim of the pitcher is termed the "attractive zone" and contains fragrant nectar glands and is usually brightly colored. Once the insect is enticed to enter the pitcher, it is confronted with downward-pointing hairs. These hairs make it much easier for the insect to enter the plant than to leave it. When the inspect passes this hairy area, it encounters a section of smooth tissue. By this time the victim has reached the point of no return, and after it loses its footing on the slippery surface, it falls to its death and is drowned by the digestive fluid in the base of the pitcher. After the enzymes in this liquid act on the insect, its nutritive juices are absorbed into the plant.

The Venus's flytrap is a most unique plant which is only native to the coastal plains of North and South Carolina. Darwin described it as one of the most wonderful plants in the world. The Venus's flytrap, *Dionaea muscipula,* is a shallow-rooted plant. Its leaves are shaped into a trapping mechanism which is the most elaborate of the carnivorous plants. The insects are first attracted to the plant by a sweet nectar and the red coloration of the traps. Once the insect enters the trap, it must touch at least two of the trigger hairs found on each lobe of the trap in order to detonate it. After these are touched, the trap closes at a startling rate and imprisons the victim. The trap closes completely around its body and the insect is drowned by digestive juices.

Marilyn Maupin, who is in charge of developing our indoor horticulture special plant collections, is doing her part to bring these incredible plants to the attention of plant lovers in St. Louis. She recently returned from a trip to North Carolina Botanical Garden and to the Green Swamp to see how these plants are propagated and how they grow in the wild. She also visited with Dr. Schnell, a national authority on carnivorous plants, and viewed his extensive collection.

Marilyn brought back from her trip many different types of plants which will be used for a special carnivorous plant bog exhibit planned for next spring here at the Garden.

—Steven Frowine,
Chairman Indoor Horticulture

Sarracenia minor

Sarracenia leucophylla

Dionaea muscipula

Fall Education Programs

Here is a listing of the education programs to be offered this fall. There *will not* be a separate mailing this fall, so please check out all of the courses and call for further information on those of your choice. There will be another follow-up in the September/October *Bulletin.*

AUGUST

Pitzman Program: Great Explorations

August 5-8 and 12-15

Drying Foods At Home

Learn to dry foods for year around enjoyment. A food nutrition specialist will show you how to build a simple food dryer. She will share techniques and tips for drying foods, such as, fruit, leather, jerky, and vegetables.

1 Meeting – August 28, 1980
Thursday – 9:30 a.m. to 12:00 noon
Fee – $2.00
Instructor:
Mary Siebert, U. of MO Extension Specialist Arboretum, Freund Education Center

SEPTEMBER

Family Walks At The Arboretum

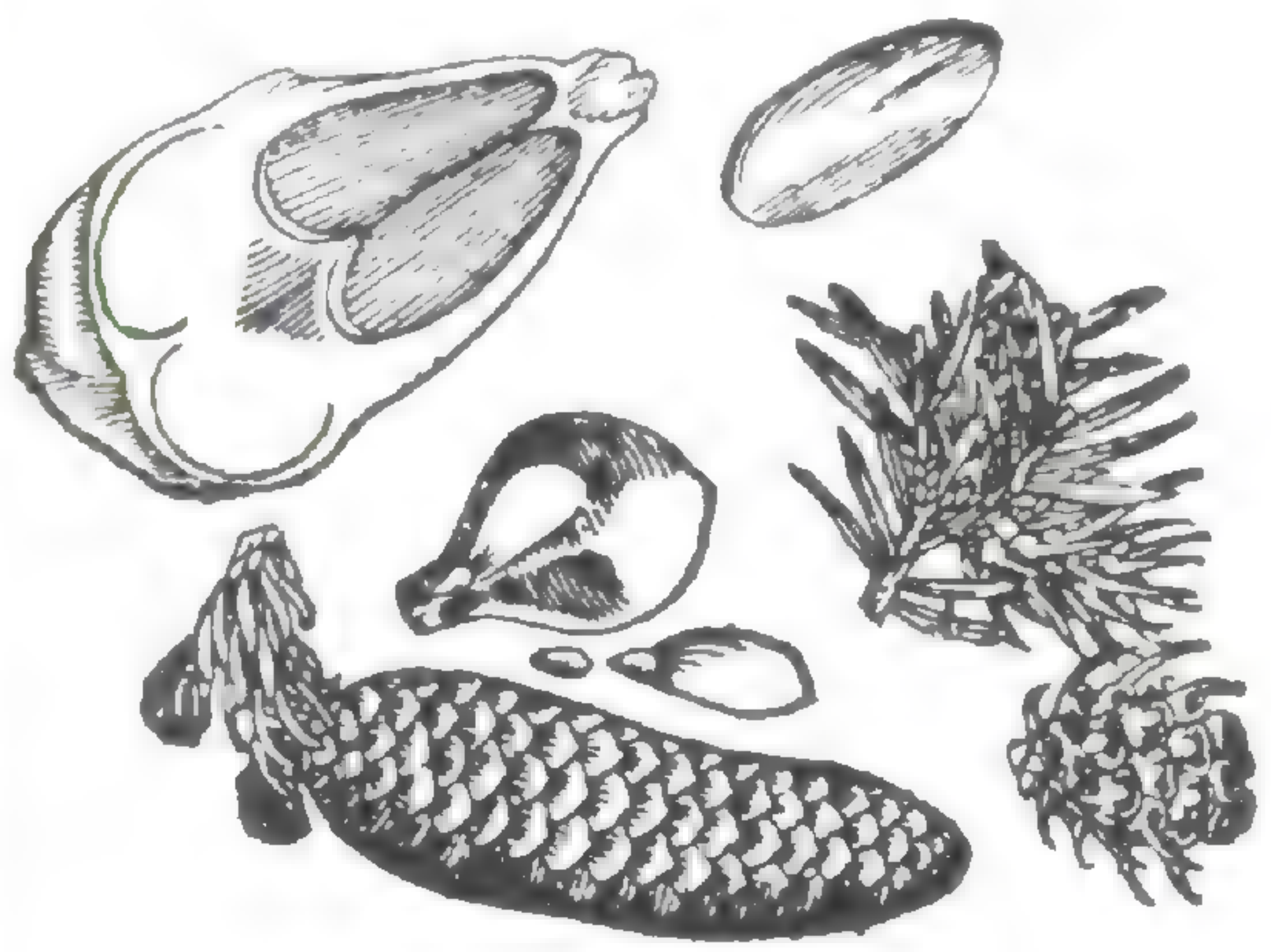
Shaw Arboretum is an exciting place for families to heighten their awareness of the natural world. These leisurely walks help adults and children use all of their senses while sharing the enjoyment of the natural world. Children should be at least 4 years old. Please call for reservations.

1 Meeting – September 20, 27 or October 4, 11
Saturdays – 10:00 a.m. to 12:00 noon or 1:00 p.m. to 3:00 p.m
Fee: $4.50 per family, Garden Member Families $3.50
Instructor:
Arboretum Staff – Arboretum, Visitor

Autumn Walks

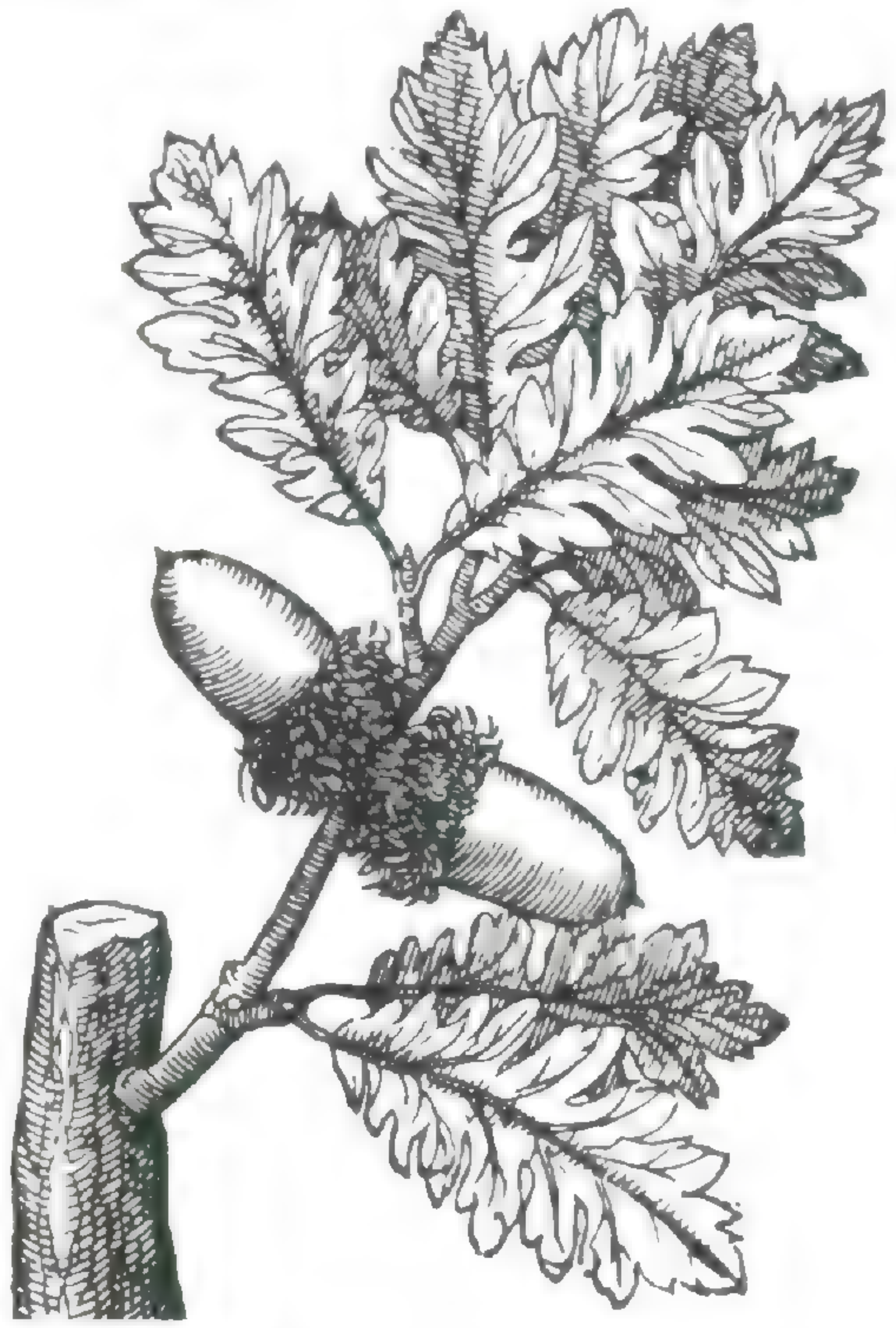
Shaw Arboretum is a beautiful setting to enjoy and study the fall wildflowers, ripening berries and fall foliage. Visit the Arboretum and join these informal, educational walks with three noted local naturalists. The walks will assemble at the Arboretum Visitor Center each Tuesday beginning September 23, 1980. The programs will conclude at approximately 1:30 in the afternoon. Wear comfortable outdoor apparel and bring a lunch. Individuals need not make reservations. Groups can be accommodated on other dates.

1 Meeting – September 23, 30, October 7, 14, 21 or 28, 1980
Tuesdays – 9:30 a.m. to 1:30 p.m.
Fee: $2.00, Garden Members $1.00
Instructors:
Art Christ, Betty Nellums, Nell Menke - Shaw Arboretum, Visitor Center



Poisonous Plants

An introduction to plants harmful to man through a discussion of plants in the house, around the home, and in other areas. Students are encouraged to bring a list of the plants they are concerned about. There will also be a display of common poisonous plants. An important part of this session will



Family Float Trip On The Meramec

The Meramec River has many moods as it flows through the Ozark hills passing caves, bluffs, and other natural wonders. It should be a magical time with the hills of the river valley splashed with red, orange, green and gold. This trip is designed for families to relax, enjoy and explore, in canoes and on foot, the Meramec River Valley.

Participants should bring their own sleeping bags, but arrangements can be made for rental. Fee includes guide, food, group equipment and canoes. Children 7 years and older.

1 Meeting – Saturday and Sunday, October 4 & 5, 1980, 8:00 a.m. to 4:00 p.m.
Fee
$55.00, Garden Members $50.00
$18.00 for each additional canoe
Instructor:
Greg Krone – Arboretum, Visitor Center

Painting The Fall Scene

Spend a day and one-half deep in the Missouri countryside capturing the autumn vistas on canvas. This watercolor workshop will include three demonstrations and painting sessions. For inexperienced and experienced watercolorists. Students should bring their own supplies and a lunch for the first day. Fee includes a buffet supper on Saturday and a box lunch on Sunday. Overnight accommodations are available at the Best Western Diamond Inn opposite the Arboretum entrance. Participants wanting accommodations should make their own reservations. (314-742-3501)

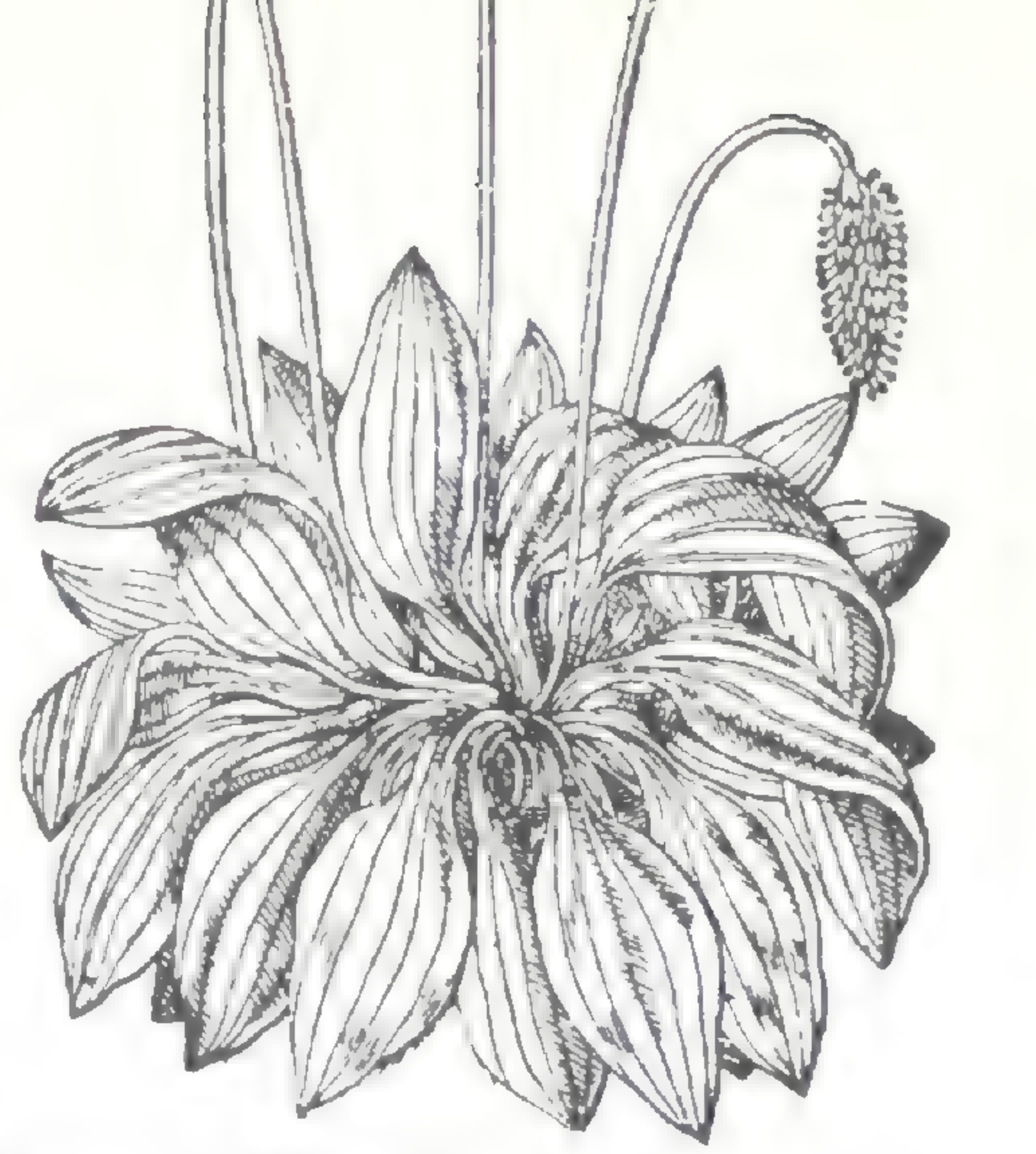
1 Meeting - Saturday, October 11 – 9:30 a.m. to 9:00 p.m.
Sunday, October 12 – 9:30 a.m. to 12:30 p.m.
Fee:
$55.00, Garden Members $52.00
Instructor:
Nicky Bottger – Arboretum, Freund Education Center

Muir Trek

October 17, 18

Nature Photography Workshop (Basic)

Fall Field Session at the Arboretum
October 18



Organic Gardening

The basic principles of organic gardening are presented in this two day course. Learn to grow vegetables using natural methods and materials without poisonous sprays or chemical fertilizers. Help with the construction of a raised bed for early spring vegetables. Become acquainted with soil preparation, mulching, composting, selecting varieties and timing of plantings. The instructor will use his garden for demonstrations. Bring a lunch. Beverage provided.

2 Meetings – September 20 & 27, 1980
Saturdays – 10:00 a.m. to 2:30 p.m.
Fee: $15.00, Garden Members $12.00
Instructor:
Bill Davit; Staff Naturalist – Shaw Arboretum, Freund Education Center

Advanced Ikebana

A course for many who have previously had training in the basics of Japanese flower arranging. The instructor will provide individual guidance in the creation of arrangements. The Garden will provide all plant materials but students should bring their own containers, pinholders and hand pruners.

4 Meetings – Fee: $25.00; Garden Members $20.00
Mondays – 12:45 p.m. to 3:00 p.m.
September 22, 29, October 6, 13
Instructor: Florence Morris Forbes
Lehmann Building

Tuesday – September 23
Section A – 1:00 to 3:30 p.m.
Section B – 7:00 to 9:30 p.m.
Instructor:
Kenneth Peck – Lehmann Building

Evening Hikes At The Arboretum

A night owl hoots
Intense gaze, crystal starlit
Twinkling eyes, a winged shadow flies.

Come and enjoy star gazing, walk in the moonlight, observe wildlife on their nighttime foraging as we explore the many surprising and enchanting moods of the night world. A simple refreshment will complement the occasion. Please call the Arboretum for reservations.

1 Meeting – September 26, October 24 or November 21
Friday evenings – 8:00 p.m. to 10:30 p.m.
Fee:
$2.00, Garden Members $1.00
Instructor:
Greg Krone – Arboretum, Visitor Center

OCTOBER

Photography I

Gardens, Trees and Plants

A basic how-to-do-it course for those eager to learn how to capture on film his own, and other gardens. Covers: long, medium and close views; the seasons; basic camera equipment use; special lenses; filters; composition; natural lighting; exposure control; depth of field (focus) plus professional tricks of the trade, includes hints and techniques for better "on tour" photography. This course is a prerequisite to Photography II.

5 Meetings – Fee $35.00; Garden Members $30.00
Wednesday Evenings – 6:30 p.m. to 8:30 p.m.
October 1, 8, 15, 22
Saturday – Field trip photography session
October 11 – 9:00 a.m. to 12:00 noon
Instructor:
Robert Lee II – Lehmann Building

Natural History Tours

These walks will highlight the inter relationships between plants and animals of the Ozarks. These are easy paced walks but will range over the extensive trail system of the Arboretum. Bring a lunch. Individuals need not make reservations. Groups can be accommodated on other dates.

1 Meeting – October 4, 11, 18 or 25, 1980
Saturdays – 9:30 a.m. to 12:30 p.m.
Fee: $2.00, Garden Members $1.00
Instructors:
Staff – Arboretum, Visitor Center

Plant Propagation Workshop

This workshop provides practical experience for beginners in simple useful techniques in plant propagation. Students will gain experience in taking and handling cuttings. The Garden will provide a propagation box, rooting medium and cuttings. Students are asked to bring pruning shears and a sandwich. Coffee will be provided.

1 Meeting – Fee: $16.00; Garden Members $14.00
Tuesday – 10:00 a.m. to 3:00 p.m.
October 4
Instructor:
Susan Kratky, Staff Horticulturist - Lehmann Building

Advanced Ikebana

October 6, 13

Autumn Walks

October 7, 14, 21 or 28, 1980

Arboretum

October 24 or November 21

Nature Photography Workshop (Advanced)

October 25

Photography II

Flower and Plant Close-Ups, a Workshop

October 29, November 5, 8, 12, 19

Heritage Trails – A Group Journey

1 Meeting – to be announced.

NOVEMBER

Photography II

Flower and Plant Close Ups, a Workshop

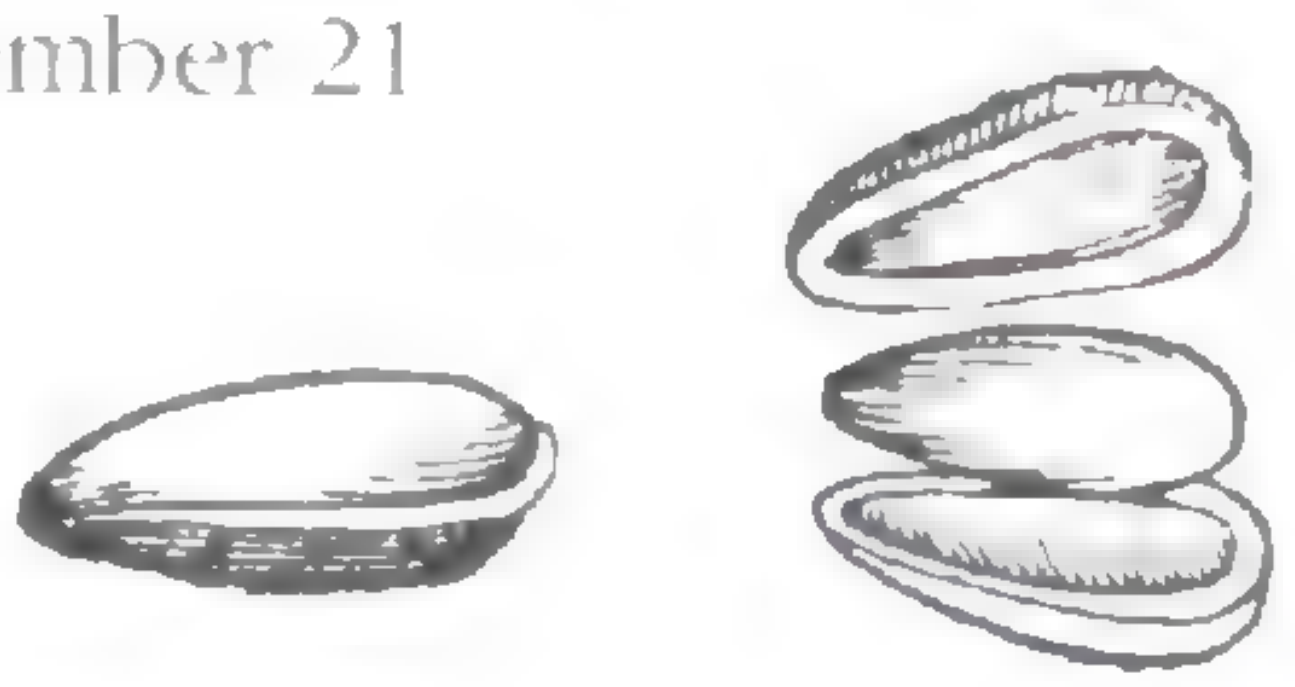
November 5, 8, 12, 19

Wood Lot Management

November 5, 8

Evening Hikes At The Arboretum

November 21



Coming in November and December

House Plant Culture
Bulb Forcing
Wheat Weaving
Christmas Decorations: Economy Workshop
Christmas Decorations: Deluxe Workshop

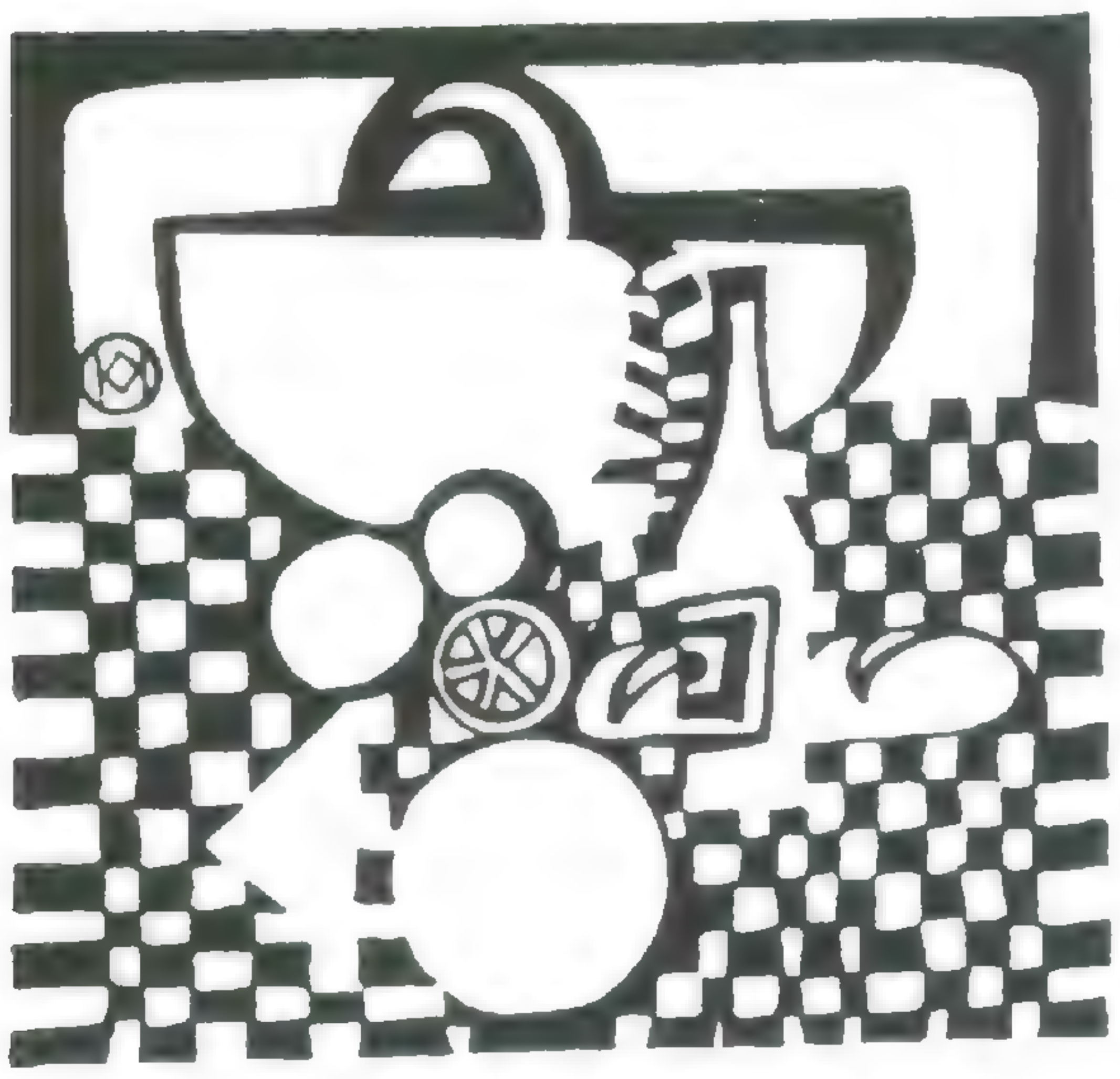
Other Educational Opportunities

The staff of the Arboretum encourages schools, clubs, and organizations of all kinds and of all ages to inquire about the full range of programs available to them. Please call for information, reservations, and fees.

For Additional Details call 577-5138 or 577-5141

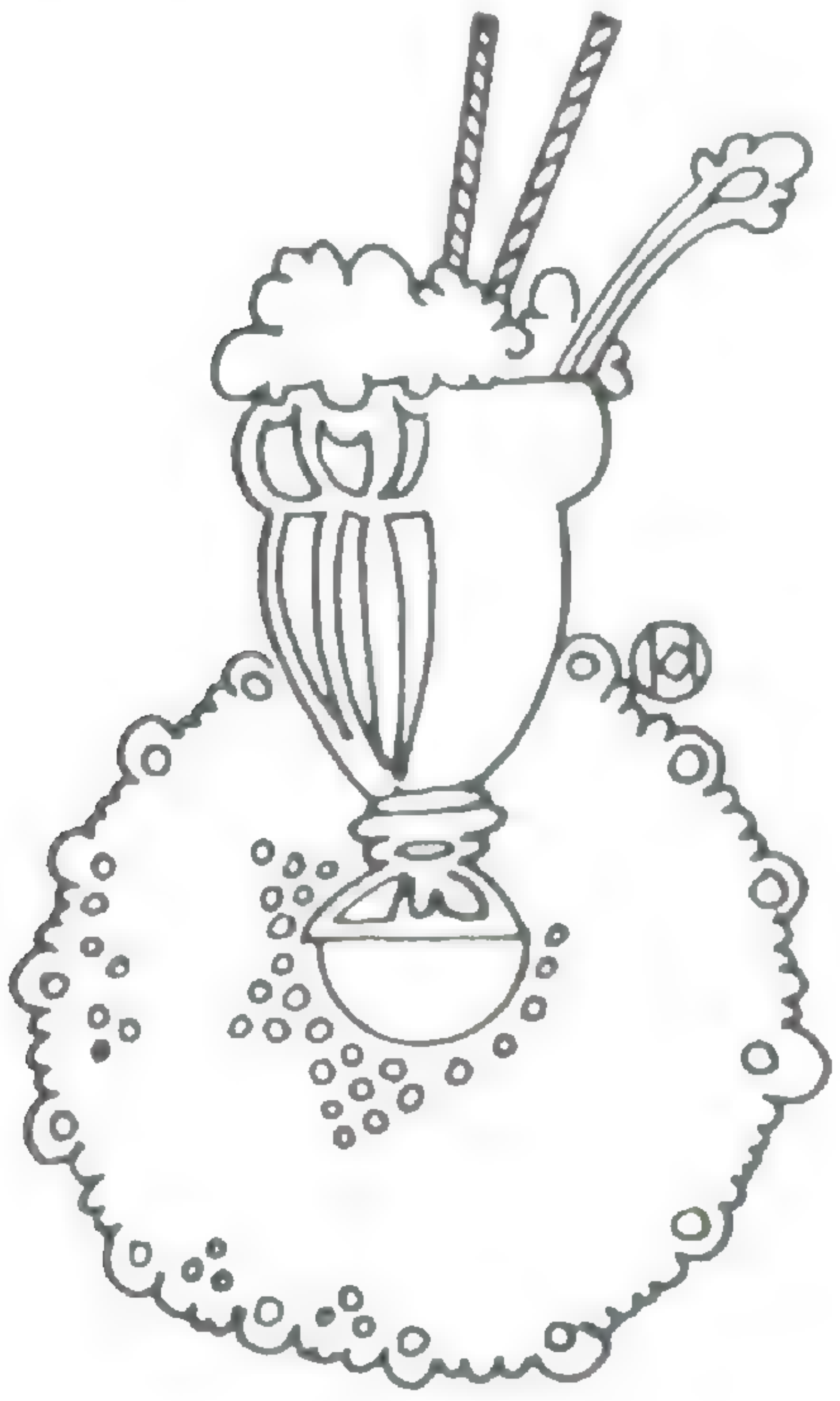
Calendar

July



4 — Family Picnic Day

Bring the family to the Garden along with a picnic lunch. July 4 has been set aside for this special purpose. Join us with your picnic and make this fourth a special treat for the entire family.



13 — Ice Cream Social

Another special treat is in store for the family July 13 when Velvet Freeze will sponsor an ice cream social. While enjoying ice cream, entertainment will be provided by clowns and musicians.

Many thanks to Tom Spitzer, President of Velvet Freeze Ice Cream, for once again sponsoring the Ice Cream Social to be held on Sunday, July 13 from 1:00-4:00 p.m. throughout the Garden grounds. The Velvet Freeze sponsorship will provide a delightful afternoon for the entire family; entertainment will include clowns, musical offerings and a magic show.

Velvet Freeze will, of course, also be selling their delicious ice cream. Plan to spend the afternoon at the Garden — and bring your friends.

19 — Rock Garden Exhibit

A special collection of Mediterranean plants will be displayed in the rock garden outside of the Mediterranean House. The show will begin on July 19 and run through August 10. A special brochure will describe some of these plants that are suitable for growing in St. Louis area gardens.

24 — Henry Shaw's Birthday

This is a special invitation to all children in the St. Louis area to help celebrate Henry Shaw's birthday. Free tickets will be sent to any child twelve years old or under who sends a birthday card to Mr. Shaw. The ticket admits the child and members of his or her family to the Garden and a day of fun and refreshments on Thursday, July 24th.

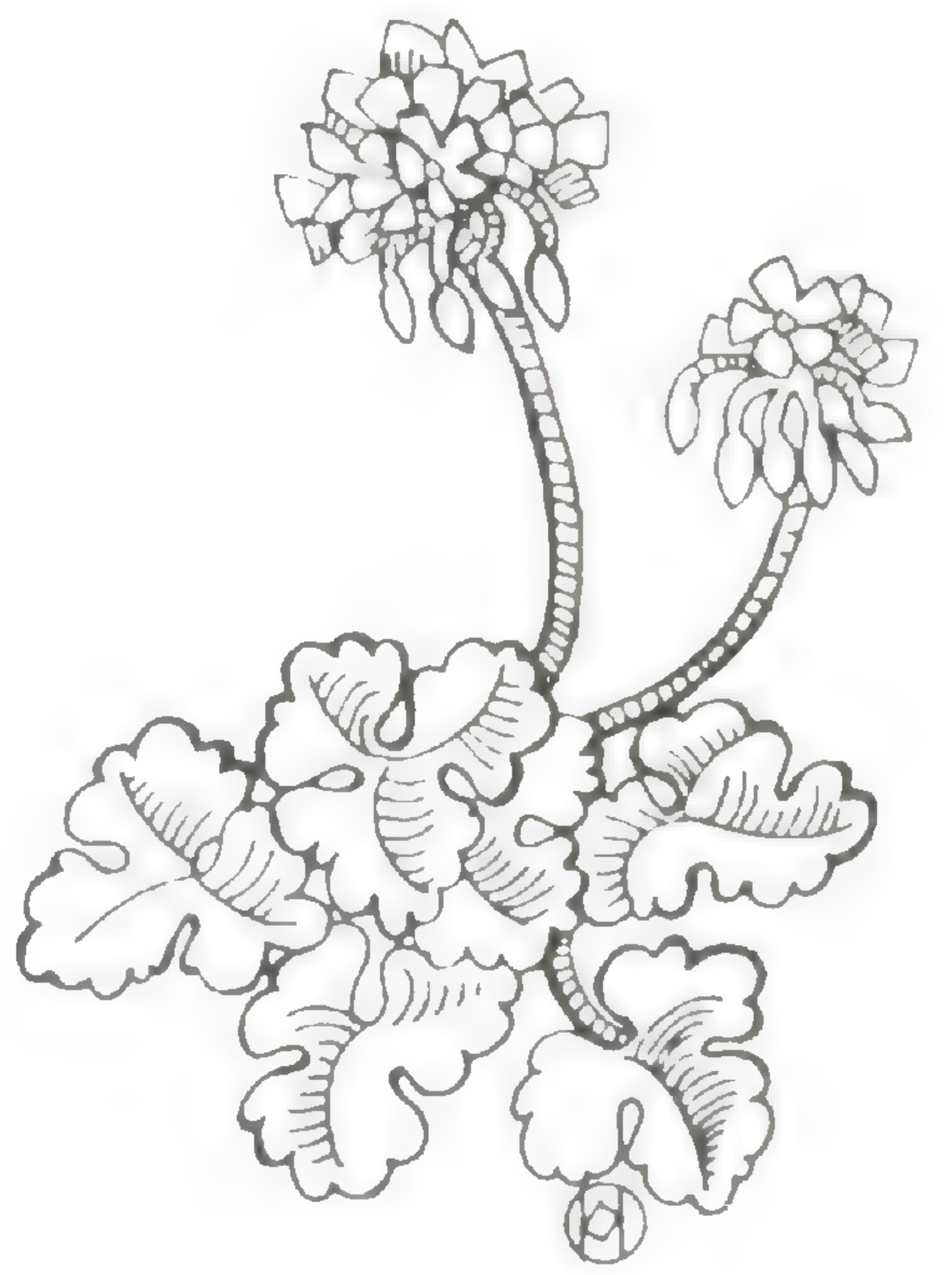
The party will feature music and performances by Bob Cramer's Marionnettes. The sponsor of the party is the Bussmann Division, McGraw-Edison Company.

In addition, Bussmann is presenting three $100 education scholarships for the most imaginative birthday cards. One scholarship will be awarded in each of three age categories; eight and under, nine and ten, eleven and twelve years of age. The birthday card entries will be judged on the basis of their originality, design, and creativity. In order to be eligible, entries must be postmarked no later than July 15, 1980. Each card must include, in addition to a birthday greeting to Mr. Shaw, the name, age, address and telephone number of the child, and the number of tickets requested.

The festivities are scheduled to begin at 11:00 a.m. with a performance by the Marionnettes. Following the performance, refreshments will be served. A second Marionnette show will be held at 1:00 p.m.

For further information call 577-5122.

August

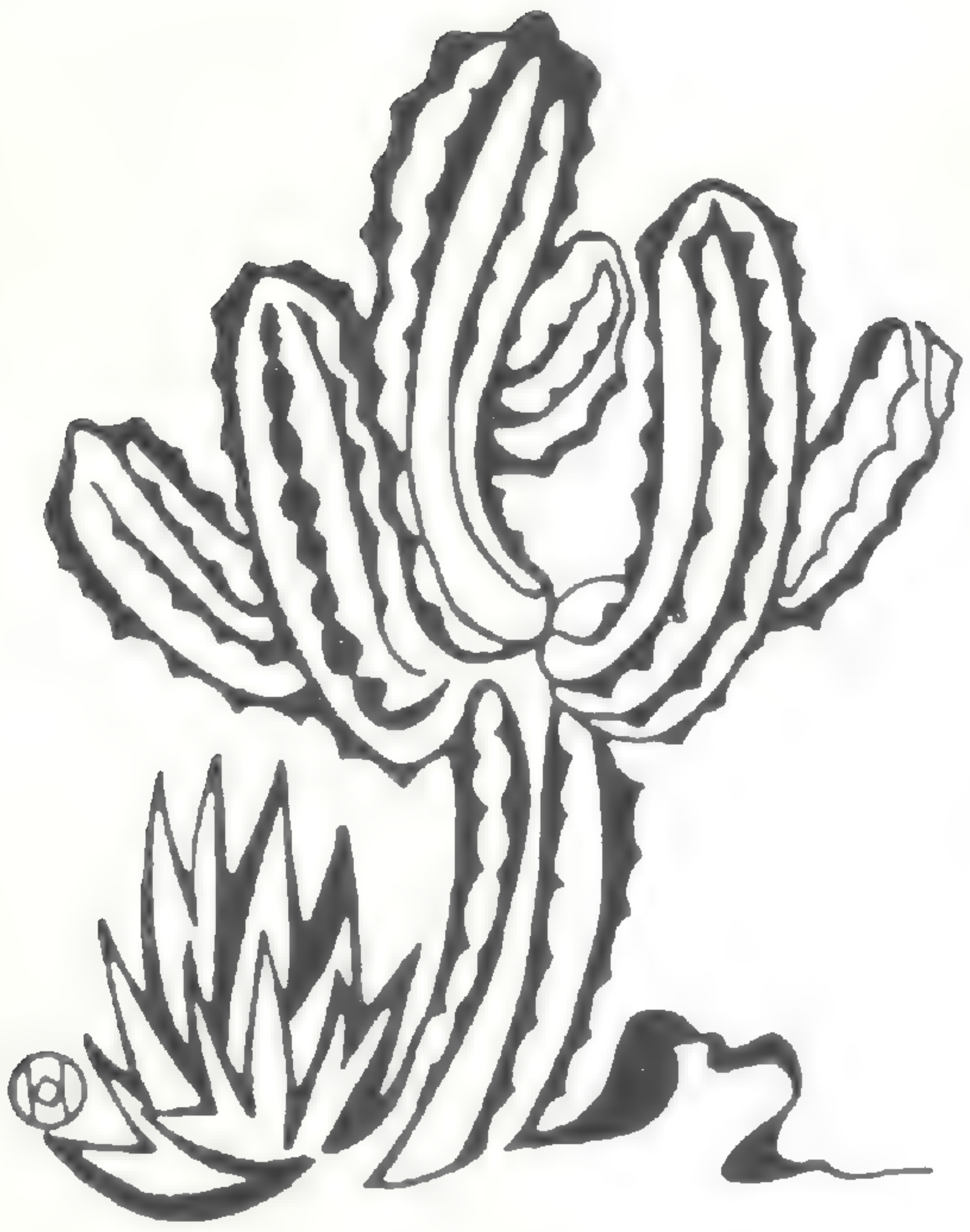


9 — Geranium Exhibit

A special geranium exhibit opens August 9 and runs through September 1, 1980. The show will take place in the patio area of the Climatron. Featured will be a fantastic array of geraniums including: carefree, old fashioned, fancy-leaved, scented, standard and miniatures.

16 — South African Succulents

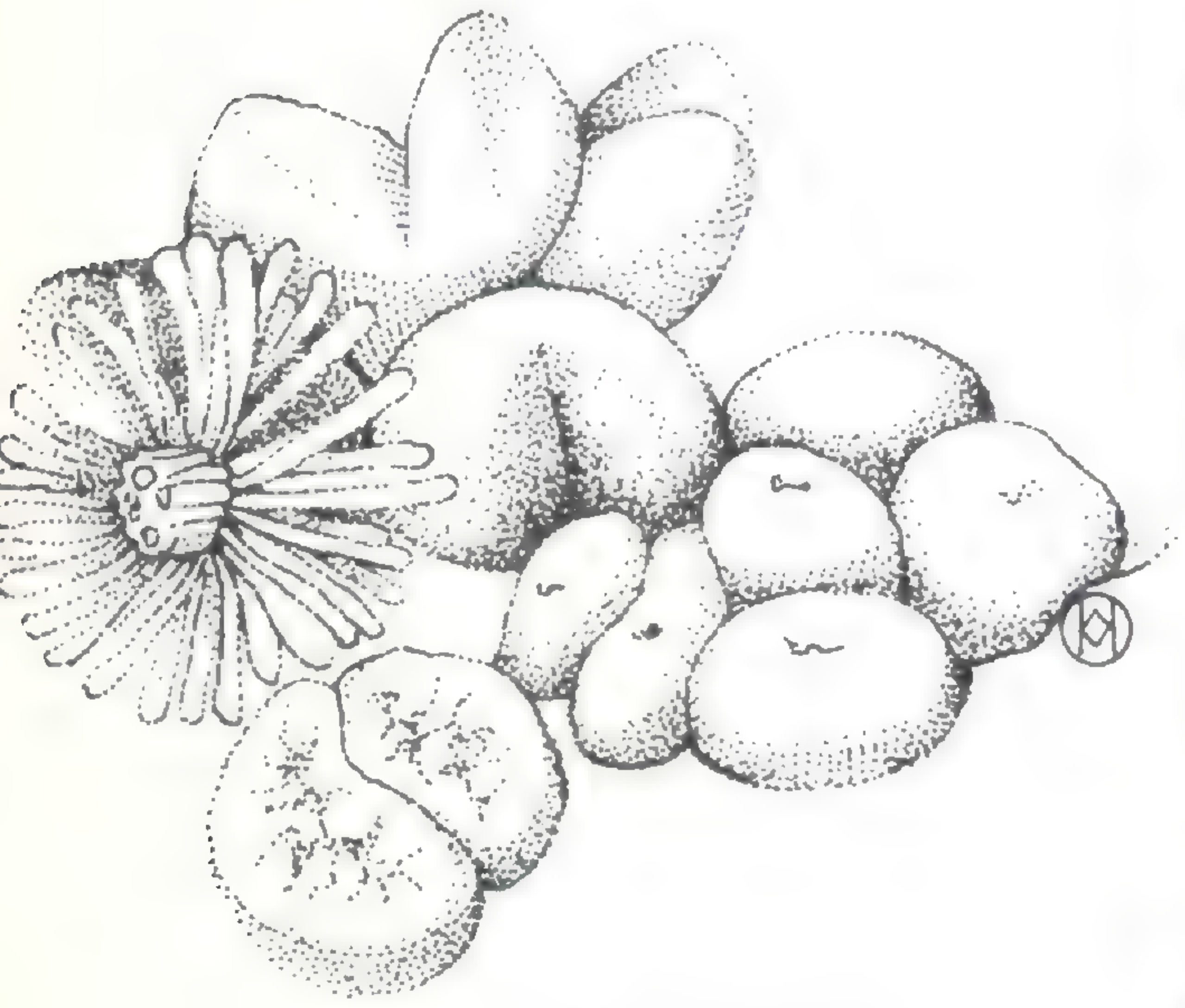
A new exhibit titled "South African Succulents" opens August 16th and runs through September 7th. The exhibit will be in the Desert House and will feature succulent plants of South Africa. Many of the plants will be exhibited in the cases at the west end of the house. Brief descriptions of their characteristics will be provided.



23 — Henry Shaw Cactus Society Show

The Henry Shaw Cactus Society Show is August 23-September 1 in the John S. Lehmann Building. Fifteen more classes have been added this year for the show entitled "The Wonderful World of Cacti and Succulents." Many new and unusual plants will be offered for sale with many more succulents available than ever before.

Special emphasis will be placed on endangered species during this show. A large map will be displayed showing the areas of the world in which cacti and succulents are native. Always a favorite show at the Garden, this 1980 show is planned to be better than ever before.



The St. Louis Alumnae Club of Pi Beta Phi has made a contribution of $600.00 to the Garden to purchase microscopes for use by the Education Department. The Club operates the Gift Shop, Sign of the Arrow, at 9740 Clayton Road and distributes the profits from the shop to St. Louis organizations.

The bronze mother and child by sculptor Marcel Rau is a gift of David Baron. The piece is dated 1929 and is one of three casts. It is a work of charm and character.

The library in the John S. Lehmann Building contains a section of books on gardening and horticulture which are available to Members. The library is open Monday through Friday from 9:00 a.m. to 5:00 p.m.

Gardening in St. Louis

This has been an extraordinary year for gardeners. Because of the mild winter everything has bloomed in abundance. Gardeners have also had greater battles than usual with insect problems. However, since minor problems dim somehow in light of the fantastic display of color from borders, the profusion of bloom from roses, the cool vibrant green of lawns, trees and shrubs, the endless produce from the vegetable garden — all the labor seems duly rewarded. The shady corner invites a few hours of relaxation with a good book and quiet contemplation.

As the season continues it is wise to make notes on particular successes and failures for next year. With everything at hand it is hard to believe that such things can be forgotten by next gardening season, but that happens to all busy gardeners.

Midsummer Tasks

Check roses on a regular basis for insect infestations and blackspot. Spray after watering and heavy rains. Remove flowers as they fade. Continue to fertilize until early August.

Water as needed. Check lawns, flower borders and gardens. When watering apply the equivalent of two inches of rain. Don't forget to check pots daily as they dry very quickly on warm summer days.

Keep adding mulch as it breaks down. This adds nutrients to the soil, keeps down weeds and reduces soil temperatures.

Trim hedges and prune trees and shrubs as needed. Weak and damaged branches should be removed.

Be certain your pruning equipment is sharp and in good repair before tackling the job.

Keep annuals cut back and apply fertilizer in August. Remove flowers as they fade.

The middle of August onward is a good time to transplant evergreens. Select trees and shrubs at the nursery or garden center while in leaf. Then transplant when they go dormant. Keep newly planted material watered.

Divide perennials in August discarding the centers that are old and woody. Work up beds to a depth of 12 to 14 inches adding organic matter and superphosphate. Plant perennials in prepared beds, mulch and keep watered.

Clean cold frames and greenhouses while the weather is good. Make necessary repairs. Vegetables can be grown in the frames for later fall harvest.

Vegetable Gardens

While enjoying the abundant harvest from your vegetable garden, plan for cool weather crops by planting in mid July or early August. Plant carrots, lettuce, broccoli, cabbage, cauliflower, radishes and spinach. Growth will pick up as weather gets cooler. Soil should be worked up and fertilized with a balanced fertilizer before sowing seed.

House Plants

Plants moved outside should be showing lots of new growth. Keep plants on a regular schedule of watering and fertilizing. Rotate pots that have been sunk in the ground to encourage uniform growth. As the summer progresses, check plants and repot those that require it.

Most of all, enjoy the lovely days of summer as you work in your garden!

—Barbara B. Pesch

News Notes

Dr. Lorin I. Nevling, Jr., a longtime Garden associate and greduate of Washington University, has been appointed director of the Field Museum of bnxatural History in Chicago.

Since January, 1978, Nevling has been assistant director for science and education at the museum and was chairman of its botany department from 1973 to 1978.

* * *

During June, July and August the Garden will remain open until 8:30 p.m. on Wednesdays. The extended hours provide a unique opportunity for strolling during this special time of the day.

The extended hours are an experiment to see how many people will come to the Garden during this time. Should the hours prove popular, it is possible that more days would be added with extended hours.

* * *

Two sculptures entitled "Two-Piece Reclining Figures" were completed by Henry Moore in 1959 and 1960. They were purchased by Mr. & Mrs. Howard Baer in 1961 for Lambert Field from the London Gallery.

Because the airport setting was hectic, as a consequence the sculptures could not be fully appreciated. Mr. Baer requested in 1969 that they be transferred to the Art Museum. This transaction was completed in 1969.

Since at that time the Art Museum did not have an appropriate area to display the sculptures an agreement was reached whereby they would be displayed at the Garden.

Here they have remained to frame the view from the lily pool area to Tower Grove House.

* * *

A tape recorded tour of the Garden is available for use by visitors through the Garden Gate Shop. The tape and player may be rented for $1.50 per hour with one earphone and $1.75 per hour for two earphones. A complete tour takes on the average an hour, although each person is free to set his or her own pace. The first tape, a general introduction of the Garden, was made possible by a gift from the St. Louis Service Bureau Foundation. Additional tapes on other aspects on the Garden will be prepared as funding is available.

* * *

Mr. Harry E. Wuertenbaecher will again serve as chairman of the Henry Shaw Fund. This fund was established in 1979 to seek funding for the Garden's program activities.

The goal for the 1980 fund drive is $325,000.00.

* * *

The National Science Foundation has announced the award of a grant of approximately $1 million to support the research-oriented operations of the Missouri Botanical (Shaw's) Garden here, it was announced by Dr. Peter H. Raven, Garden director.

"We welcome this grant because of the importance of our research work here at the Garden and around the world," Dr. Raven said, "which could not be continued without this kind of significant public support."

The grant will support a five-year program of work within the Garden's Herbarium, a plant "library" which includes more than three million plant specimens and which represents an invaluable asset to research scientists working in the fields of botany and horticulture. Specimens from the Herbarium are placed at the disposal of research workers in plant systematics worldwide. During the past five years, for instance, more than 100,000 sheets of specimens have been released on loan to scientists to assist in their research efforts.

Funds from the National Science Foundation grant will be used to increase the Herbarium's collection; repackage moss collection specimens; continue an ongoing program to stamp-identify unstamped specimens; improve the Herbarium's sorting and identification services; and improve the Herbarium's overall management system.

The Herbarium of the Missouri Botanical Garden is one of the most active in the world.

Members' Trip –

Dates: September 14-October 3
Garden Escort: Steve Frowine

Springtime in South Africa, an exclusively designed tour to gardens in Johannesburg and the Cape Town area as well as a visit to Kruger National Park, is being offered to Members of the Garden. The trip will feature visits to the Kirstenbosh Botanical Gardens, the Cape Peninsula, and Fernkloof Nature Reserve noted for its display of protea and veld flowers. A highlight of the stay in Cape Town will be a visit to the Darling Flower Show. You will also spend time at Plettenberg Bay to see the Provincial Nature Reserve and even tour an ostrich farm.

Steve Frowine, Chairman Indoor Horticulture, will lead this exciting tour which will offer a unique opportunity to see the beauty and variety of thousands of species of flora and fauna not to be found anywhere else in the world.

For further information and a copy of the detailed itinerary, please telephone the Members' Office at 577-5118.

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Mr./Mrs. Richard B. Cronheim
Mr./Mrs. James W. Singer, Jr.

In Honor of Edward L. Bakewell, III
Garden Club of St. Louis

In Honor of Arthur and Marilyn Boettcher, Jr.'s 25th Wedding Anniversary
Mrs. A. Berra and Julie Berra
Jerry and Jean Dudding
Mr./Mrs. Leslie R. Giles

In Honor of Mr. and Mrs. Nathan H. Burgheim's Wedding Anniversary
Elsie S. Glik

In Honor of the Recovery of Mrs. Katherine Froehlich
Marian and Gerry Barnholtz

In Honor of Florence Guth
Erna Eisendrath
Garden Club of St. Louis
Mrs. Charles Lamy
Mr./Mrs. Harry B. Wilson

In Honor of Mrs. Charles Hardie
Delmar Garden Club

In Honor of Mrs. Robert Kittner
Gay Blades Garden Club

In Honor of Mr. and Mrs. Albert B. Kurrus' 25th Wedding Anniversary
Mr./Mrs. Clifford M. Kurrus
Georgia Sledge

In Honor of Mrs. Ellis Littmann's Birthday
Elsie S. Glik

In Honor of Mr. and Mrs. Morton D. May's 30th Wedding Anniversary
Mrs. William Henry Schield

In Honor of the Marriage of Florence Taylor Morris and Robert B. Forbes
Mrs. O. O. Miller
Dr./Mrs. F. Thomas Ott

In Honor of the Parents of M. R. Nelson
Mr. Marshall R. Nelson

In Honor of Mr. Julian Samuel's 90th Birthday
Ilma R. Glaser

In Honor of Mr. and Mrs. Eli Strassner's 50th Wedding Anniversary
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Mrs. Robert Burnett
Mr./Mrs. Joseph Floret
Mrs. Dorothy Schweich
Mrs. J. S. Schweich

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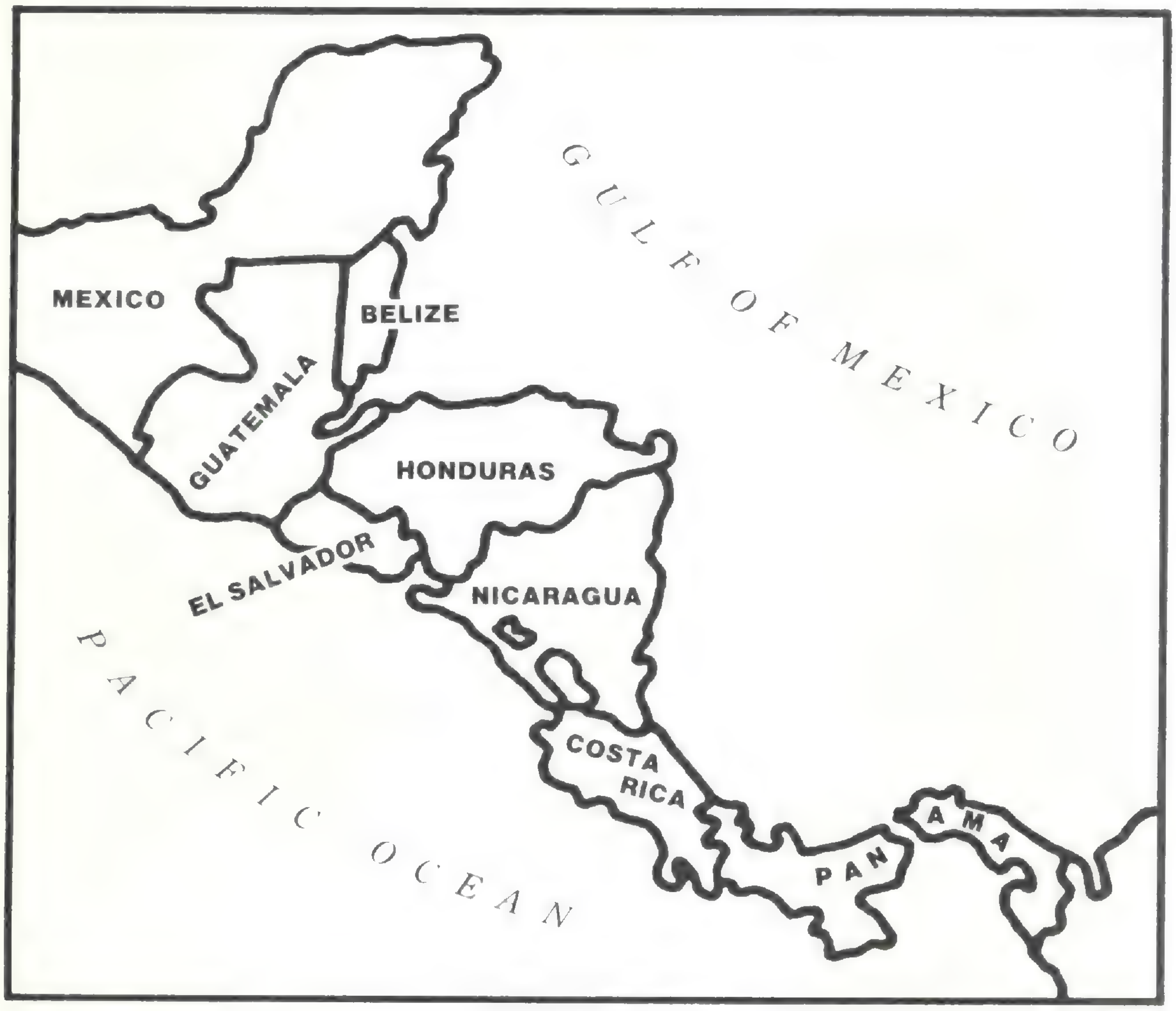
New Project In Central America



A new ten-year project to catalog the flora of Central America was announced by Peter H. Raven, Director of the Missouri Botanical Garden, at a symposium held at the Garden July 14-15, 1980. The project, called *Flora Mesoamericana* will include surveys of the plants of Panama, Costa Rica, Nicaragua, Honduras, Guatemala, Belize, and Southern Mexico. Principal sponsors of the study in addition to the Garden are the Universidad Nacional Autonoma de Mexico and the British Museum (Natural History). Gerrit Davidse, Associate Curator at the Garden, will be co-editor of the flora which will be published in Spanish and will include an estimated 20,000 species of plants.

In announcing the project, Raven said that most natural ecosystems in the area of the project will virtually be destroyed in the next 30 to 40 years. Hundreds of species of plants in Central America have never been classified scientifically and little is known about many others. One goal of the project is to collect and classify as many plants as possible so that in the future they will be available for study by scientists. Field work will be concentrated in those parts of the area that are least known. Another primary goal of the project is to train scientists and strengthen scientific, educational and environmental institutions in Mexico and Central American countries. Publication of the results in Spanish will make the data collected particularly useful for scholars and government officials in Latin America. The three sponsoring institutions have committed the equivalent of 10 full time research staff members to the project initially.

The Missouri Botanical Garden is one of the most active centers in North America for study of Latin American flora. The Garden receives about $500,000 a year from the National Science Foundation for research in tropical biology and to maintain the Herbarium which has a collection of over 3 million plants.

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* * *

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President of the Executive Board
of the Members

Dr. Peter H. Raven,
Director

Comment—

Dr.
Peter
H. Raven

Looking back at the last three months, we had many successes. We had our most successful Japanese Festival; we released the first four wildflower prints commissioned by the Garden and the British Museum; we celebrated the completion of the Flora of Panama, a 37 year project with an international Congress; and we began work on a flora of Mexico and Central America. Most visibly, the new Visitor Center began to take form this summer.

Now that the foundation is poured, the steel framework of the Visitor Center will quickly take shape. The two-story building is about 240 feet long and 160 feet wide. The dome running through the center will be 55 feet high and will become a real landmark.

I reported to you last February that inflation had increased the cost of the Visitor Center, and we would not be able to complete all of the interior of the building initially. Since last winter, we have continued to raise funds and will now be able to complete both the plant shop and the gift shop. The shops will be much more spacious and provide a greater variety of items than possible in their present quarters. With these two shops, the east wing of the building as you enter the front door will be finished when the building opens in about 14 months.

As we obtain more contributions, we will be able to complete more and more of the interior. We will have consolidated facilities now spread throughout the Garden. The Visitor Center will become the center of activities for Members and the public. With it, the Garden will continue to provide the finest program and facilities of any botanical garden in the world.

Peter H. Raven

Letter from Venezuela

Gerrit Davidse,
Associate Curator
Missouri Botanical Garden

The day after my arrival in Caracas I was able to leave for a collecting trip with Drs. Julian Steyermark and Otto Huber to the Territorio Amazonas. We collected in the valley of the Rio Cataniapo near the city of Puerto Ayacucho. Part of this valley will soon be dammed to form a reservoir that will supply the water for this city of about 20,000 people, so this will be the last opportunity to study the vegetation in this area before the construction and flooding begin.

Julian Steyermark and Otto Huber are ideal companions on a field trip. Julian's earlier work was in Missouri where he published the definitive flora and where a state park has been named in his honor. For many years now he has been head curator at the Instituto de Botánico, the national herbarium of Venezuela. Julian has collected more plants than any other scientist in history. Otto is an Italian by birth but in heart an Austrian who works for the government agency in Venezuela responsible for the development of Territorio Amazonas. Each day we tried to guess how many plants we collected that day with the winner enjoying a milkshake at the expense of the other two.

We collected many rare and exciting plants. One particularly interesting find for me because of my specialization in grasses, was a forest grass along a small caño. It was not possible to collect flowering specimens at this time of the year, so positive identification is difficult. However, it is so distinctive that I feel fairly certain it must be an undescribed specimen.

We lived very comfortably compared to other field trips. We stayed at the local hotel which had a small courtyard with four mango trees. So, there were fresh mangos everyday to supplement the local cuisine which tends to be bland. Pancake-like arepas which are made from corn meal are served as our breakfast every morning and rice is a staple. There is a local cheese which is called queso blanco which is white and very salty.

One of the agencies in the Ministry of Environment of the Venezuelan Government has now appointed someone to continue the collecting effort we began. We were able to train him in the correct collecting techniques, and he will periodically visit this dam site and collect species which we missed or which were not flowering and fruiting. I hope to be able to get back to Venezuela from time to time myself, because in this and other parts of the country there are many unstudied areas which are under considerable pressure from lumbering and other forms of development.

The MISSOURI BOTANICAL GARDEN BULLETIN is published six times each year, in January, March, May, July, September and November by the Missouri Botanical Garden, P.O. Box 299, St. Louis, Mo. 63166. Second class postage paid at St. Louis, Mo. $5.00 per year. $6.00 foreign.

ORCHID SALE

Saturday, November 15, 1980

10:00 a.m. to 4:00 p.m. (or until sold out)

Take advantage of this rare opportunity to see and buy some of the over 1,000 orchid plants which will be sold from Missouri Botanical Garden's famous orchid collection. For the beginning orchid grower, the corsage-type orchid *(Cattleyas)* will start at $5.00. The advanced orchidist may be more interested in various unusual species; plants from the genera *Laelia, Epidendrum, Lycaste, Maxillaria, Paphiopedilum, Pleurothallis, Schomburgkia, Mormolyca, Pholidota, Brassavola, Bulbophyllum, Isochilus* and others will be on sale.

Orchid experts from the St. Louis area orchid societies plus horticulturists from the Missouri Botanical Garden will be available to answer any orchid growing questions. Free information sheets detailing basic how-to-grow-orchids information will also be available.

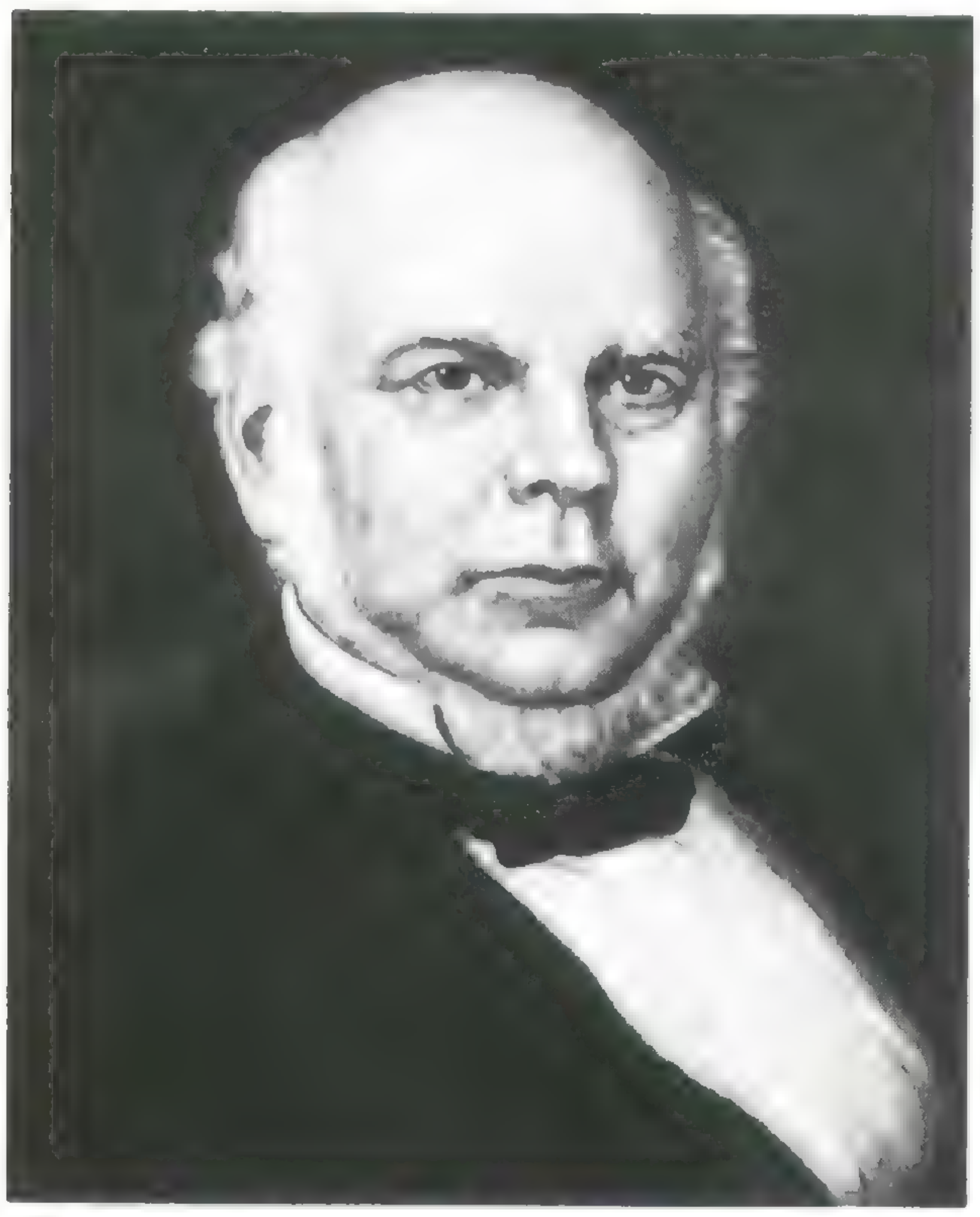
Buy exotic orchids for yourself and as gifts for your friends! All proceeds from the sale will go towards buying new plants to improve the Missouri Botanical Garden's collection.

A preview sale will be held Friday, November 14 from 7 to 9 p.m. A $10 per person contribution is required to attend the preview sale.

For more information, call 577-5190.

The Historical Collections Of The Garden's Library

The archival and manuscript materials in the Garden's library constitute a nationally important collection of original source material in botanical and horticultural history. Presently including well over 100,000 written pieces and a large pictorial archive of prints, drawings and photographic records, these collections constitute an important resource for the study of the development of botanical thought and knowledge, the scientific exploration of the American West, and the history of St. Louis in the nineteenth century. In conjunction with the nearly 200,000 published items in the Garden's library, these historical collections provide an unusual resource for scholars and students seeking to understand botanical and horticultural history. Two of the largest collections are the papers of Henry Shaw and of George Engelmann.


The papers of George Engelmann, an early St. Louis botanist, are included in the library's historical collections.

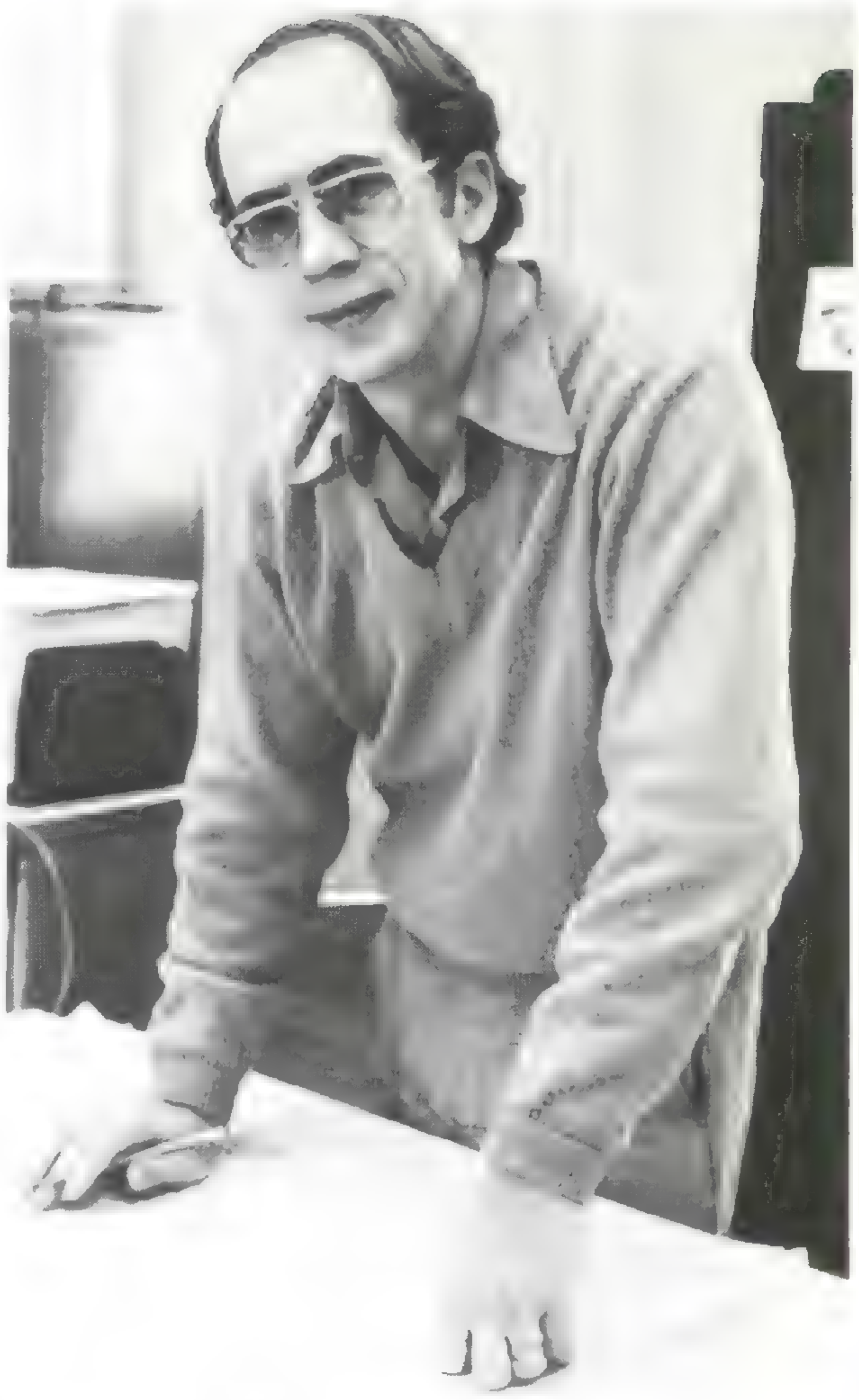
In recognition of the importance of these papers, the National Historical Publications and Records Commission recently awarded the Garden a grant to arrange, inventory, and prepare a published guide to the Shaw and Engelmann papers. Upon its completion, this grant will have made the Shaw and Engelmann papers readily available to qualified researchers in botany and history.

Included, too, in the manuscript collections are an autograph collection of letters from almost every outstanding botanist alive in the years immediately preceding World War I. Manuscripts and letters of such individuals as Josiah Gregg, John Charles Fremont, Francis Parkman, Thomas Jefferson, the famous bibliographer J. Christian Bay, Agnes Arber, Liberty Hyde Bailey, Charles Sprague Sargent, Thomas Alva Edison, John M. Coulter, Alexander Graham Bell, Charles Darwin, Pier Andrea Mattioli, William Cobbett, Reverend Gilbert White *(The Natural History of Selbourne),* Hugo de Vries, and many others enrich the collection. Of particular historical interest are a group of maps and plans of the Garden from the architectural firm of Frederick Law Olmsted.

The collection also includes the Garden's archival records, including the scientific correspondence of its former Directors and other official records and correspondence. In addition, the Garden serves as the archival repository for the Missouri Museum Associates (the state association of museum professionals) and for Tower Grove Park, St. Louis' second largest public park.

The Garden's pictorial archive includes nearly 2,000 glass negatives (some as early as 1854), and several thousand negatives, prints and transparencies that provide a photographic record of many scenes in St. Louis, early buildings and architectural features once owned by Henry Shaw, photographs taken on plant collecting expeditions, slides of prominent landscape architectural designs throughout the world, and photographs of plant specimens and is thus a pictorial record of the Garden's history. Also included in the pictorial archive are several thousand works of botanical art and illustration from the mid-fifteenth century to the present day; cartographic records (both printed and manuscript) from the early seventeenth century to the present; nineteenth and twentieth century prints of horticultural fairs, flower exhibits, farming and gardening practices, agricultural implements, etc.; and original blueprints and landscape plans for features at the Garden.

These collections, housed within the library in the John S. Lehmann Building, are available for consultation by researchers although certain restrictions must be placed on their use. Individuals should submit a written request outlining the nature and anticipated results of their research project and at least one letter of reference to the library staff.


Richard H. Daley

Danforth Selects Daley

Richard H. Daley, Special Assistant to the Director of the Garden, has been selected to participate in the 1980-1981 St. Louis Leadership Program which is sponsored by the Danforth Foundation. Daley is among 46 individuals who were chosen for this year's program based on their involvement in dealing with urban problems in the St. Louis Metropolitan area. According to the Foundation, "individuals are sought who are at a stage in their development when additional education and practical experiences can enhance their capacity to work for greater communication and understanding of community issues, and who possess skills and desire to assist people of various view points in working together in the solution of problems."

Daley is a graduate of Colorado State University and received a M.S. in plant ecology, also from Colorado State, in 1972. He has been employed at the Garden since 1973. From 1973 to 1977 he participated in various environmental impact studies. He has served as an assistant to the Director since 1978. He is active in the Gateway Preservation Committee, Missouri Citizens for the Arts, the Missouri Native Plant Society, and the Garden Tower East Neighborhood Association, and is a member of the steering committee for the Shaw Neighborhood Plan.

IT'S TIME TO TAKE CUTTINGS

By: Steven A. Frowine

When you bring houseplants from the patio or porch to their indoor home, you may be overwhelmed by how much they have grown. So it is sometimes necessary to take cuttings to return them to a manageable size.

To begin this project you will need the following materials:

1. A sharp, clean knife.
2. Several clear, plastic shoe boxes, sweater boxes or 6-inch pots for holding cuttings and soil.
3. A bag of pasteurized soil (bake at 180 degrees Fahrenheit for 30 minutes) or better still use soilless potting material.
4. Plastic bags (if you are using 6-inch pots).
5. Plants which are to be propagated.
6. A pencil or permanent marking pen. Do not use a ball point pen. It is not waterproof.
7. Plastic labels.

There are two basic types of cuttings — stem cuttings and leaf cuttings.

STEM CUTTINGS

These cuttings are taken from the lateral (side) branches or the terminal (tip) branches. The usual cutting length is 3 to 5 inches. The lower one-inch or more of the stem should be clear of leaves.

The stem is usually cut at a 45 degree angle to provide more rooting surface. After the stem is cut, it is dipped into rooting hormone and then placed into a container of predampened potting soil.

After the cuttings are planted in a plastic or clay pot, the pot should be covered with a plastic bag. A stick should be placed in the center of the pot to prevent the plastic from touching the leaves. Leaf contact with the wet plastic can cause fungal disease.

If the container is covered, it usually will not need to be watered for several weeks. It usually will take anywhere from two to six weeks before the cuttings will root.

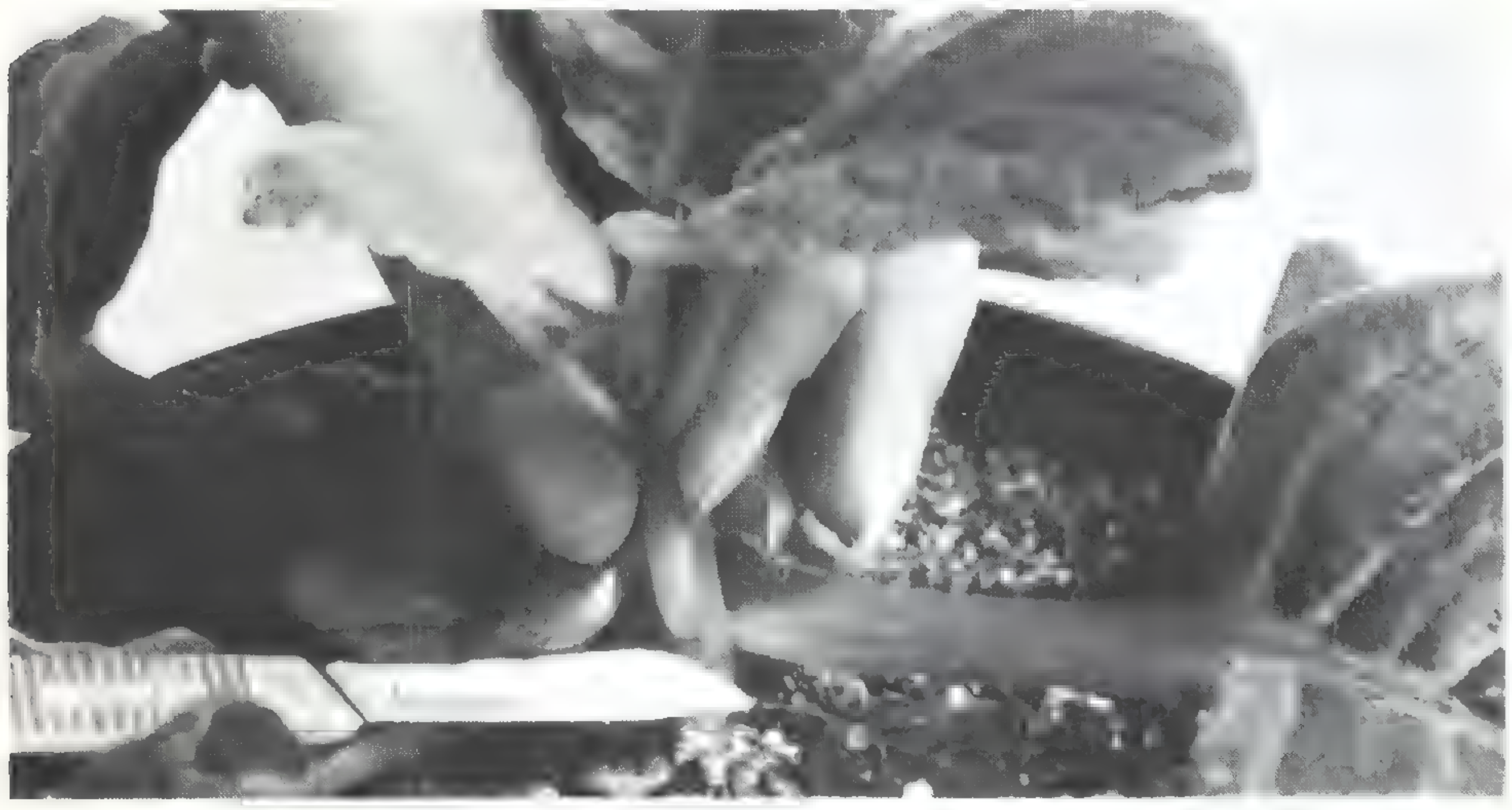
Plants with soft tissue such as coleus will root in two to three weeks; hard cuttings like those from shrubs or woody plants may take four or six weeks or longer. Be sure the cuttings are very well rooted before they are transplanted into pots.

LEAF CUTTINGS

This type of cutting can be taken from such plants as African violets and gloxinias. It will usually take longer to produce a mature plant from this method than from stem cuttings. Some leaves, such as those from gloxinias, will form small tubers at the base of the leaf.

Leaf and stem cuttings can be taken from large, mature plants or from those which have just sprouted from bulbs or tubers. Tuberous begonias and gloxinias commonly sprout more than one plant from each tuber.

These extra sprouts should be cut off to produce a more symmetrical plant. Since the shoots have to be removed anyway, you may as well root these extra sprouts. They will sometimes grow quicker as cuttings than when they were attached to the tuber.



Stem cuttings should be taken from lateral or terminal branches. The stem should be cut at a 45 degree angle and should be three to five inches long.

IMPROVED
ROOTONE

After the stem is cut it should be dipped in a rooting hormone.

The cutting should be placed in a container of predampened potting soil. The container should then be covered with a plastic bag.

Leaf cuttings can be taken from plants such as African violets and gloxinias.

Fall Courses And Activities

Saturday Morning Activities

Nature study programs for children, their parents or group leaders, teachers, or any interested persons, are offered on one Saturday each month from October through May. These programs include tours of special Garden facilities as well as experience with live plants. Meetings are held in the Lehmann Building from 10 to 11:30 a.m., except as noted. Pre-registration is necessary. Please call the Education Department at 577-5140 Monday through Friday.

Fees: Adults $3.50; Children $1.25
Member Adults $1; Children $.50

October 25 —
Table Top Greenhouses.
Propagate plants from cuttings. Garden will provide cuttings and small propagating unit.

November 22 —
How to Make a Terrarium.
Small plants and soil for a terrarium supplied by Garden. (Bring a wide mouth jar or small glass bowl.)

December 20 —
Christmas Wreaths.
Make a Christmas wreath to take home. Bring a coat hanger bent into a loop.

January 17 —
Botanical Research Tour.
A look at the Garden's research center and one of the largest collections of preserved plants in North America. See how they are collected, stored and used. No fee for this tour. Regular Garden admission only.

Garden Tours

Groups of 10 or more may engage the services of a knowledgeable Garden Guide at 10 a.m. or 11 a.m. and at 1 p.m. or 2 p.m., weekdays. Saturday tours are scheduled between 10 a.m. and noon. A group rate for 15 or more is offered. Reservations for guided tours must be made a minimum of 3 weeks in advance. For reservations, call 577-5140 between 9:00 a.m. and 5:00 p.m., weekdays.

For information about these Fall courses and activities, call the Education Department of the Missouri Botanical Garden. Telephone 314/577-5140.

Short Courses

House Plant Culture

A practical course on the selection, care and feeding of house plants. Discussion will include the general cultural procedures for certain groups of plants such as succulents, bromeliads, and foliage plants. There will be a brief practice session in the division and potting of certain plants. There will also be discussions of insect control and the use of artificial lighting.

2 Meetings — Fee: $11.00; Garden Members $8.00

Wednesdays — 1:00-2:30 p.m.

November 5, 12

Instructor: Susan Kratky
Staff Horticulturist
Lehmann Building

Bulb Forcing

Bulbs that bloom indoors in the dead of winter are the subject of this course. Instruction covers the essential procedures in coaxing bulbs into flower before they bloom outdoors, in addition to a discussion of their native homes, structure, and distinction of bulb types. Each student will plant five pots of bulbs to be forced at home. Bulbs to be forced include Narcissus, Hyacinth, Iris and Crocus.

1 Meeting — Fee: $18.00; Garden Members $16.00

Section A
Tuesday — 12:30 to 3:30 p.m.
November 11

Section B
Thursday — 12:30 to 3:30 p.m.
November 13

Instructor: John Elsley
Superintendent
Japanese Garden
Lehmann Building

Miniature Bonsai Workshop

A workshop in the mame style of bonsai for beginners. This activity will provide basic experiences in selecting, pruning, wiring and potting a miniature bonsai (under 6 inches). Each participant will prepare one bonsai specimen to take home. Other plants and bonsai containers will be available at additional cost. Ideal gifts for Christmas.

1 Meeting — Fee: $17.00; Garden Members $15.00

Section A
Tuesday Afternoon —
1:00 to 4:00 p.m.
December 2

Section B
Tuesday Evening —
7:00 to 10:00 p.m.
December 2

Instructor: Kenneth Peck
Manager of
Instructional Services
Lehmann Building

Wheat Weaving

This new course will train students to use natural, dried wheat stalks to create ornaments for Thanksgiving, Christmas, or any other time of year. The instructor will display a variety of different weaving patterns and then demonstrate, step-by-step, the weaving of two ornaments which will be made by class members to take along. Extra wheat will be provided to students for home practice.

1 Meeting — Fee: $8.00; Garden Members $6.00

Section A
Thursday 9:30 a.m. to 12:00 p.m.

Section B
Thursday 1:30 to 4:00 p.m.

November 20 (both sections)

Instructor: Ellen Claus

Christmas Decorations: Deluxe Workshop

A course in the handling of natural materials to make Christmas decorations. Plant materials such as ivy, Douglas Fir, Noble Fir and cones will be used. Part of the workshop will be familiarization with the plants and techniques. Bring pruning shears, wire cutters, a sturdy coat hanger and a sandwich. Coffee will be provided.

1 Meeting — Fee: $24.00; Garden Members $21.50

Section A—
Thursday — 10:00 a.m. to 2:30 p.m.
December 11

Section B—
Friday — 10:00 a.m. to 2:30 p.m.
December 12

Instructors: Education Staff
Lehmann Building

Christmas Decorations: Economy Workshop

A chance to make your own Christmas wreath and a table decoration using fresh greens. The instructor will demonstrate how to make these pieces and assist workshop participants. In addition to greens, the Garden will supply ribbon for a bow, cones, and wire. Each person is requested to bring a sturdy coat hanger.

1 Meeting — Fee: $14.00; Garden Members $12.00

Section A —
Monday — 9:30 a.m. to 12:30 p.m.
December 15

Section B —
Tuesday — 9:30 a.m. to 12:30 p.m.
December 16

Instructors: Education Staff
Lehmann Building

Arboretum Activities

Nature Photography Workshop (Basic)

Fall Field Session at the Arboretum

A "hands on" introduction to the beautiful world of nature photography. Covers: The art of "seeing" subjects; correct use of equipment; pictorial composition; shooting techniques in the field; lenses (macro not included). Summary and critiques of enrollees' field techniques included. Level: beginner to intermediate amateur 35 mm SLR photographer. Trail hiking required. Bring a lunch. This workshop or Photography I (MBG) is a prerequisite to Photography II and the Advanced Nature Workshop.

1 Meeting — Saturday October 18. Rain date October 19.

Leaving West County Shopping Center via car pool at 7:45 a.m.

Workshop 9:00 a.m. to 4:30 p.m.

Fee: $22.00: Garden Members $18.00

Instructor: Robert Lee II
Arboretum, Trail House

Nature Photography Workshop (Advanced)

For the serious nature photographer to improve close-up techniques. Introduction to macro photography under field conditions. Equipment essentials (and frills) plus home-made helps. Natural and flash lighting setups and procedures. Subjects will include wildflowers, plants, insects and varied woodland life. You must have 35 mm SLR camera(s), tripod or flash-camera bracket device, flash with off-camera capability and macro, bellows, extension or close-up lens capabilities. Prerequisite: Photography (MBG) or "Nature Photography Workshop I" (Arboretum 10/18/80). Limited enrollment. Bring a lunch.

1 Meeting — Saturday October 25. Rain date October 26.

Leaving West County Shopping Center via carpool at 7:45 a.m. for Workshop and field session from 9:00 a.m. to 4:30 p.m. at the Arboretum.

Fee: $22.00, Garden Members $18.00

Instructor: Robert Lee II
Arboretum, Trail House

Heritage Trails A Group Journey

Shaw Arboretum in cooperation with the Acclimatization Experiences Institute (AEI) is pleased to offer an exploratory journey of the upper Buffalo River region in northern Arkansas. This exceptional new program is designed for the individual seeking a closer relationship with both the natural and the cultural environment.

Participants will hike little-used trails and paths, immersed in the special beauty of an Ozark autumn, meeting some of the folks who settled these backwoods hills, piecing together the stories told by the abandoned log cabins, tools and other artifacts of man's passage; in short, learning first hand of the natural and cultural forces shaping this unique national riverway.

A Group Journey specialist from AEI will lead this Heritage Trails Program, which will be strictly limited to eight participants (age 17 years or older). Fee includes guide, food, group equipment and insurance. Each participant should bring a back pack and sleeping bag, but arrangements can be made for rental of these items if needed. The Arboretum will assist in formation of car pooling among participants to the meeting point in Ponka, Arkansas.

1 Meeting — October 20-26

Fee: $185.00

Instructor: Eddie Soloway
Acclimatization
Experiences Institute

Muir Trek

Have you ever wondered where a woodland path leads or what lies beyond the next hill? Going to find out is a Muir Trek! This 1 night, 1 day adventure is for youths, ages 13-16 years. We will explore the farthest reaches of Shaw Arboretum in the style of naturalist John Muir, who walked cross country observing and writing about the beauty, complexity and flow of nature. We will live close to the land and come to know some of the many moods and manners of nature. Quiet observation times will provide for contemplation and journal keeping. Participants should bring their own sleeping bags.

1 Meeting — Friday night October 17 8:00 p.m. to Saturday October 18 4:00 p.m.

Fee: $12.00, Garden members $10.00

Instructors: Eddie Soloway
Acclimatization
Experiences Institute
Bill Davit and Greg Krone,
Arboretum, Visitor Center

Arboretum Tours

Come by bus or ride the Arboretum's Wilderness Wagon with a staff naturalist. Enjoy the fall foliage and crisp autumn air. Explore an Ozark path. Luncheon at the stone and wooden Trail House. Call for reservations and fees: 577-5138.

Wood Lot Management

Learn the value of your trees and how to manage your wood lot for wildlife habitat, veneer logs, saw logs, and firewood. Study timber stand improvement methods. Discover the factors that affect the quality of your trees. The program includes both a lecture and a field trip.

2 Meetings — November 5 at East Central College, Union, Room 211 Administration Building and November 8 at the Arboretum

Wednesday evening — 6:30 p.m. to 9:30 p.m.
Saturday morning — 9:30 a.m. to 12:30 p.m.

Fee: $2.00, Garden Members $1.00

Instructor: Bob Aubuchon
Resource Forester
Missouri Department
of Conservation

Organic Gardening

The basic principles of organic gardening are presented in this two-day course. Learn to grow vegetables using natural methods and materials without poisonous sprays or chemical fertilizers. Help with the construction of a raised bed for early spring vegetables. Become acquainted with soil preparation, mulching, composting, selecting varieties and timing of plantings. The instructor will use his garden for demonstrations. Bring a lunch. Beverage provided.

2 Meetings — September 20 & 27, 1980

Saturdays — 10:00 a.m. to 2:30 p.m.

Fee: $15, Garden Members $12.00

Instructor: Bill Davit
Staff Naturalist
Shaw Arboretum,
Freund Education Center

Autumn Walks

Shaw Arboretum is a beautiful setting to enjoy and study the fall wildflowers, ripening berries and fall foliage. Visit the Arboretum and join these informal, educational walks with three noted local naturalists. The walks will assemble at the Arboretum Visitor Center each Tuesday beginning September 23. The programs will conclude at approximately 1:30 in the afternoon. Wear comfortable outdoor apparel and bring a lunch. Individuals need not make reservations. Groups can be accommodated on other dates.

1 Meeting — September 23, 30, October 7, 14, 21, or 28

Tuesdays — 9:30 a.m. to 1:30 p.m.

Fee: $2.00, Garden Members $1.00

Instructors: Art Christ
Betty Nellums
Nell Menke
Shaw Arboretum
Visitor Center

Natural History Tours

Walks that highlight the interrelationships between plants and animals of the Ozarks. These are easy paced walks, but they will range over the extensive trail system of the Arboretum. Bring a lunch. Individuals need not make reservations. Groups can be accommodated on other dates.

1 Meeting — September 27, October 4, 11, 18, & 25

Fee: $2.00; Garden Members $1.00

Leaders:
September 27, Nick Cirulis-Grasses of the Prairie and Fields

October 4, Bob Aubuchon-Forest Resources

October 11, David Tylka-Fresh Water Plants and Animals

October 18, Jerry V. Vineyard-Geology of the Ozark Region

October 25, Greg Krone-Reading the Landscape

Evening Hikes at The Arboretum

A night owl hoots
Intense gaze, crystal starlit
Twinkling eyes, a winged shadow flies.

Come and enjoy star gazing, walk in the moonlight, observe wildlife on their nighttime foraging as we explore the many surprising and enchanting moods of the night world. A simple refreshment will complement the occasion. Please call the Arboretum for reservations.

1 Meeting — September 26, October 24 or November 21

Friday evenings — 8:00 p.m. to 10:30 p.m.

Fee: $2.00, Garden Members $1.00

Instructor: Greg Krone
Arboretum, Visitor Center

Family Walks at The Arboretum

Shaw Arboretum is an exciting place for families to heighten their awareness of the natural world. These leisurely walks help adults and children use all of their senses while sharing the enjoyment of the natural world. Children should be at least 4 years old. Please call for reservations.

1 Meeting — September 20, 27 or October 4, 11

Saturdays — 10:00 a.m. to 12:00 noon or 1:00 p.m. to 3:00 p.m.

Fee: $4.50 per family, Garden Member Families $3.50

Instructor: Arboretum Staff
Arboretum, Visitor Center

Family Float Trip on The Meramec

The Meramec River has many moods as it floats through the Ozark hills passing caves, bluffs, and other natural wonders. It should be a magical time with the hills of the river valley splashed with red, orange, green and gold. This trip is designed for families to relax, enjoy and explore, in canoes and on foot, the Meramec River Valley.

Participants should bring their own sleeping bags, but arrangements can be made for rental. Fee includes guide, food, group equipment and canoes. Children 7 years and older.

1 Meeting — Saturday and Sunday, October 4 & 5, 8:00 a.m. to 4:00 p.m.

Fee: $55.00, Garden Members $50.00
$18.00 for each additional canoe

Instructor: Greg Krone
Arboretum, Visitor Center

Painting The Fall Scene

Spend a day and one-half deep in the Missouri countryside capturing the autumn vistas. This watercolor workshop will include three demonstrations and painting sessions. For inexperienced and experienced watercolorists. Students should bring their own supplies and a lunch for the first day. Fee includes a buffet supper on Saturday and a box lunch on Sunday. Overnight accommodations are available at the Best Western Diamond Inn opposite the Arboretum entrance. Participants wanting accommodations should make their own reservations. (314-742-3501)

1 Meeting — Saturday, October 11 — 9:30 a.m. to 9:00 p.m.
Sunday, October 12 — 9:30 a.m. to 12:30 p.m.

Fee: $55.00, Garden Members $52.00

Instructor: Nicky Bottger
Arboretum,
Freund Education Center

Shaw Birthday Card Winners!

Three St. Louis area children, honored for creating the best birthday cards for the 180th anniversary of Missouri Botanical Garden founder Henry Shaw, received $100 educational scholarships from Mike Hager, human resources director of McGraw-Edison Company's Bussmann Division, cosponsor of the contest. The children, top winners among nearly 2,000 entrants, are: (left to right) Patty Smith, 8, daughter of Dr. and Mrs. Kenneth Smith, Hawthorne Boulevard, St. Louis; Peggy Brinkmann, 10, daughter of Mr. and Mrs. Fred Brinkmann, Route 1, Labadie, Franklin County, Mo.; and Marie Shalhoob, 11, daughter of Mr. and Mrs. George Shalhoob, Northmoor Drive, University City. At far left is Doug Feltch, puppeteer with Bob Kramer's Marionnettes who helped entertain a crowd of more than 2,500 at the July 24 birthday festivities which saluted the late Mr. Shaw for donating the Garden and Tower Grove Park to the people of St. Louis.

News Notes

John A. Floyd, Jr., Senior Horticulturist of *Southern Living Magazine* paid a visit to the Garden recently. He donated a copy of the Magazine's *Trees and Shrubs* book which is now in the library.

The library is open to Members Monday through Friday from 9:00 a.m. to 5:00 p.m. There is a special section reserved for gardening books.

Wildflower Prints at Plaza Frontenac

The first four plates of a series of Wildflower Prints by artist Keith West will be exhibited at Plaza Frontenac September 1 through September 12. The prints, published jointly by the Missouri Botanical Garden and the British Museum of Natural History, depict in color the "Wildflowers of the Low Desert," "Wildflowers of the Southern Pinelands," "Wildflowers of the Alpine Rocky Mountains," and "Spring Woodland Wildflowers." Framed and unframed copies of the prints are sold at the Garden Gate Shop.

Jeanne McGilligan, newly appointed Volunteer Coordinator of the Garden, is available to talk with members and others who are interested in volunteer activities. Jeanne can be reached at 577-5187.

Sculpture Loan

THREE GRACES, a bronze sculpture, is on temporary loan to the Garden and has been placed in the pool in front of the Linnaean House. The sculpture is owned by Dr. and Mrs. Thomas S. Hall. Dr. Hall is University Professor Emeritus at Washington University and represents Chancellor William Danforth on the Garden's Board of Trustees.

Gate Shop Rummage Sale

A sidewalk Rummage Sale will be held by the Garden Gate Shop on Sunday, September 14 from 9 a.m. until 5 p.m. Damaged items and odds and ends will be offered at discounts from 20% to 70%.

Print Exhibit

Forty-two prints by artist Walter Cleveland will be on exhibit in the Lehmann Building lobby September 3 to September 25. Cleveland was born in Santa Barbara and raised in a rural atmosphere which he says "helped foster an appreciation of nature." He

(Continued on Page 10)

studied print making with Morris Blackburn at the Pennsylvania Academy of Fine Arts and with Shiro Ikegawa and Ben Sakoguchi at Pasadena City College. He has exhibited at the Pennsylvania Academy of Fine Arts, the Los Angeles County Art Museum, the California State Fair, and the Ithaca College Art Museum. Works by Cleveland have been purchased by the United States Information Agency for overseas Embassies. The exhibit will be open to the public Monday through Friday from 9 a.m. until 5 p.m.

Fall Lecture Series

The 1980 Fall Lecture Series will focus on Gardens of the World, beginning October 1, 1980 with the Gardens of Classical Rome and Greece. Gardens of China, Japan, Islam, Imperial Russia, North America, the Mediterranean and England will be featured on subsequent Wednesdays through November 19. Each lecture is presented twice, at 10:30 a.m. and 8:00 p.m. in the Auditorium of the John S. Lehmann Building.

Fall Flower Show

The 1980 Fall Flower Show featuring chrysanthemums will be held in the tent in front of the Climatron from October 4, 1980 through October 26, 1980. Garden Members will be invited to a special preview on Friday, October 3, 1980 from 6:00 to 8:00 p.m. The preview party is sponsored by Stix, Baer, and Fuller. A Champagne Toast, also sponsored by Stix, Baer and Fuller will be held on Thursday, October 2, 1980 for Henry Shaw Associates, Director's Associates, Sponsoring Members, Sustaining Members and Contributing Members.

Run To Benefit Garden

The First Annual Kelly Girl Run will be held on Saturday, September 13 at 9:00 a.m. in Tower Grove Park. The three-mile race, which is open to women of all ages, is being sponsored by Kelly Services, Inc., with the $3.00 entrance fee to benefit the Garden. All entrants will receive a t-shirt and runners completing the race will be given a free admission ticket to the Garden.

Pre-registration is necessary. Race registration forms may be obtained by calling or writing Kelly Services, 500 Northwest Plaza, St. Ann, Missouri 63074, telephone 291-8225.

Israel Festival Scheduled

A festival celebrating the culture, food, and music of Israel will be held at the Garden on Sunday, October 12 from 11 a.m. to 5 p.m. The festival is sponsored by the Jewish National Fund. Entertainment will be presented in the Lehmann Building Auditorium. Middle Eastern food and gift items from Israel will be offered for sale, and there will be a special display of Israeli art. An exhibit of plants of the Old Testament will be held in the Mediterranean House.

CARP WATCHING – Eight hundred colorful Japanese Carp (Koi) were released in the lake in the Japanese Garden on June 20. The carp were a gift of the Japan America Society. Here children are fascinated by watching the carp feed near the Togetsukyo Bridge.

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Missouri Botanical Garden Bulletin

Volume LXVIII Number 6
November/December 1980

A Victorian Holiday

> *There never was such a goose. Bob said he didn't believe there ever was such a goose cooked. It's tenderness and flavor, size and cheapness were the themes of universal admiration. Eked out by apple-sauce and mashed potatoes, it was a sufficient dinner for the whole family . . . everyone had had enough, and the youngest Cratchits in particular were steeped in sage and onions to the eyebrows.*
>
> – *Charles Dickens,*
> ***A Christmas Carol***

Perhaps because of the influence of Charles Dickens' *A Christmas Carol*, with its lush, vivid descriptions of the jollity and the decorations of a Victorian holiday, when many of us think of the December holidays, our minds conjure the images of the celebrations of a hundred years ago. Sometimes it seems that, instead of recalling a story that was read to us as children, the frivolity and the people and the trimmings of that tale are our own memories; our own holidays from years ago.

During Victoria's era, the holidays of December were days of feasting and song; of color; of rich scents in the kitchen; of evergreens and holly and mistletoe.

It was during her time that the Christmas tree, that ornamented and lit evergreen which even during our time is the center of a family's celebration, was made popular. It had been a tradition in Germany for centuries and was in fact brought to 19th century England by Victoria's German husband, Prince Alfred. When it became known that the royal palace had a tree as its festival centerpiece, the English people swiftly adopted it as their own custom. Before then, tradition specified a Kissing Bough, which was decorated with candles, presents and ornaments of fruit and hung from a ceiling. The ornaments and candles served as a frame for a single sprig of mistletoe which dangled from the center of the Bough.

The burning of the Yule Log was a custom taken from antiquity and honored by Victorians. On December 24, the log would be cut from an ash. Sometimes sprinkled with corn and cider, and sometimes with a girl enthroned upon it, the log would be dragged home. There it would be kindled with a fragment of the previous log, kept for this purpose through the year, as a sign of continuity.

Once lit, the log was carefully tended, the fire controlled; it was considered a cause of bad luck if the log burned completely in that one night.

Most of the activity of the holidays revolved around the food: feasts, large and sumptuous. Beginning as early as November, chestnuts, raisins, pears, apples, grapes, oranges and lemons filled the English shops. Inventories were swiftly depleted; it was ill-mannered not to have a house overflowing with food.

Main courses of roasting turkey or chicken or beef or goose; gingerbread cakes; simmering clove and nutmeg; steaming plum puddings and baking mince pies filled the rooms of the houses with their scents.

Plum pudding, that traditional holiday dessert of the era, according to legend, was originally created by a peasant who found the king and his royal party lost in the woods, and brought them home on Christmas eve. Having little food in his poor home, he put everything he had into one pot, thus making the first plum pudding.

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Book Review

The New York Botanical Garden Illustrated Encyclopedia of Horticulture
by
Thomas H. Everett, Garland Publishing, Inc., New York, New York, 10 Volumes $525.00/set.

When I was in high school, I was given for Christmas *The New Illustrated Encyclopedia of Gardening* which was edited by Mr. Everett. This encyclopedia provided me with many hours of enjoyable winter reading. I later referred to it frequently and still have it as part of my library.

This new encyclopedia is like a Rolls Royce edition of the earlier encyclopedia. The first volume which I have reviewed represents a fine comprehensive work which will certainly be recognized as a classic horticulture reference alongside others such as *Exotica* and *Hortus Third*. The quality of the paper, photographs, and printing is first rate. The "how-to" photographs clearly illustrate the techniques and ideas presented. *Hortus Third* has rightly been used as the taxonomic reference for this work. This insures the compatability of these two major references.

The *Encyclopedia of Horticulture* is easy to read. Each entry subject is arranged alphabetically by genus. A helpful pronunciation guide is given for the Latin names of each genus. Valuable, detailed, practical and much-sought-after cultural information is included with each plant entry. Various horticultural and botanical terms are carefully and clearly explained.

The purchase price of this ten volume encyclopedia is high, but considering its superb quality, completely justified. It will surely become a standard reference for serious amateur and professional horticulturists. Hopefully, a large number of academic and public libraries will include this valuable work in their reference section.

Many contemporary gardening books are termed as "encyclopedias," but no American horticulture books since L. H. Bailey's *Standard Cyclopedia of Horticulture* rival this work. Mr. Everett and The New York Botanical Garden are to be congratulated for giving the American gardener this superlative, exhaustive work.

— Steve Frowine, Supervisor
of Indoor Horticulture

Letter From China

(This is the first of three letters in which Dr. Raven writes of his visit to the People's Republic of China. Letters two and three will appear in subsequent issues of the *Bulletin.* — Ed.)

An invitation from the Chinese Academy of Sciences in Beijing (Peking) provided the opportunity for Tamra and me to visit botanical institutions in the People's Republic of China from August 12 to September 5, 1980. As Chairman of the Committee on Scientific Liaison with the People's Republic of China of the Botanical Society of America, I have been concerned with promoting exchanges by botanical scientists for about four years and now it was our turn to go and see for ourselves.

Our first stop was in Beijing where the Botanical Institute of the Chinese Academy of Sciences is the largest of its kind in the country.

Professor Yü Te-chün (left), Dr. Raven, Dr. Stephen Spongberg (Arnold Arboretum) and Dr. David Boufford at the Summer Palace in Beijing on the eve of the departure of the Sino-American Joint Expedition to Hubei Province.

Research at the Botanical Institute, Beijing – The waterfern being grown in the dishes contains a bacterium that changes nitrogen gas into a form in which it can be used by plants. In China, it is deliberately introduced into rice paddies for this purpose. These scientists are studying how to improve it.

Beijing has a climate similar to that of St. Louis, although its rainfall is more concentrated in the summer and winter temperatures are not quite as extreme. We hope to find many of the plants which are cultivated there are suitable for gardens here, also. For example, there are several beautiful species of pines both native to and cultivated in the Beijing area that are rare in cultivation in the United States and unknown around St. Louis. If they grow well with us, they will be fine additions.

At the same time that we are testing new plants from China, we shall be sending many of ours for evaluation there.

At the Botanical Institute in Beijing, we held extensive discussions with the Director, Professor Tang Pei-sung; the Assistant Director, Professor Yü Te-chün, and others on the matter of further exchanges of personnel and of literature, specimens, living plants and seeds. Both Professor Tang and Professor Yü visited St. Louis with the Chinese botanical delegation last year.

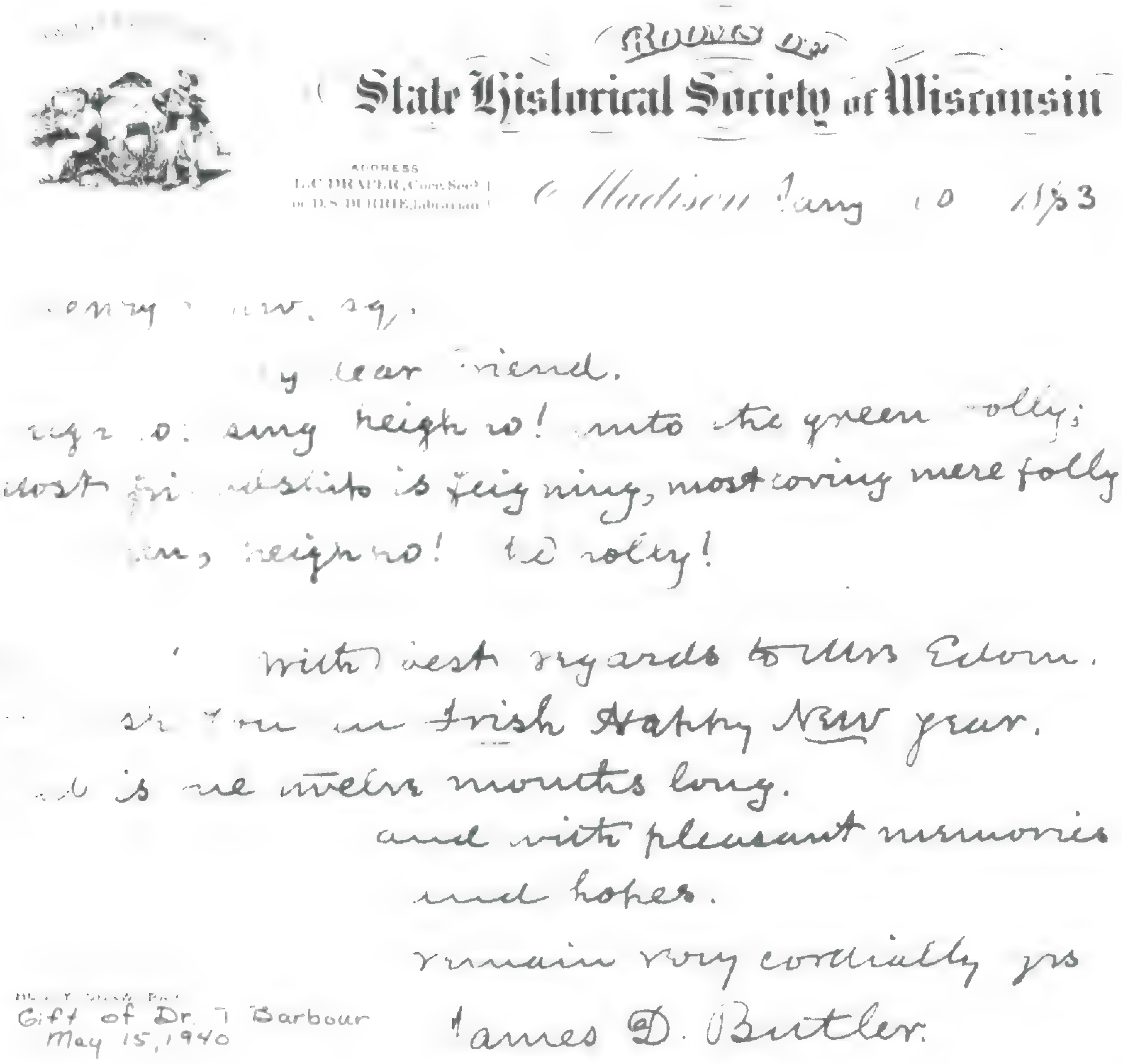
One of the most exciting subjects we discussed in China was the possibility of producing an English translation of the *Flora of China.* This 80-volume work has occupied the attention of several hundred Chinese botanists for the past 30 years. A third of the volumes have been published and the remainder are scheduled to appear by 1990. When this work is finished, it will describe approximately 30,000 species of plants — about one-eighth of the total found on earth — using some 50 million Chinese characters and over 5,000 beautifully executed full-page plates. Chinese scientists are anxious to produce an English translation of this work so that their results may be more accessible to people of the rest of the world. Especially in view of the many uses of these plants that are known in China, it is obvious that such a translation would be highly desirable. We are working with them to determine a way in which it can be accomplished.

We received our introduction to the extensive use of plants that is so characteristic of China at the Physic Garden of the Institute of Pharmacology, Chinese Academy of Medical Sciences. Here more than 600 kinds of medicinal herbs regularly sold and used by the Chinese were in cultivation for the purposes of preservation and of discerning efficient methods of deriving their products. No nation on earth is more interested in the uses of its plants than is China; everywhere we went we saw evidence of the desire not only to improve the old and traditional uses but to find new uses for all kinds of plants as gums, resins, medicines, foods and other purposes.

A highlight of our stay in Beijing was the arrival, and subsequent departure for the field, of a party of five American botanists who were to accompany a joint Sino-American expedition to southwestern China. These five included Dr. Bruce Bartholomew, now the chief botanist at the University of California Botanical Garden in Berkeley, whose doctoral work I helped supervise at Stanford University; Dr. David Boufford, who had completed his doctoral degree under my direction here at Washington University and the Missouri Botanical Garden, and who is now at the Carnegie Museum in Pittsburgh; and representatives from

(Continued on Page 9)

A Victorian Holiday *(Continued from Page 1)*



Rooms of
State Historical Society of Wisconsin
Address
L. C. Draper, Corr. Sec'y
or D. S. Durrie, Librarian
Madison Jany 10 1883

enry aw, Esq.

y dear riend.
igh o: sing heigh ho! unto the green olly;
ost fri ndship is feigning, most loving mere folly:
en, heigh ho! the holly!

With best regards to Mrs Edom.
sh you an Irish Happy New year.
ch is one twelve months long.
and with pleasant memories
and hopes.
remain very cordially yrs
James D. Butler.

Gift of Dr. T Barbour
May 15, 1940

A letter to Henry Shaw from James D. Butler, written January 10, 1883.

The holiday dinner was often interrupted by wandering carolers who made the rounds of neighborhoods, singing at doorways or beneath windows. Families entertained by the carolers gave them gifts of money or food.

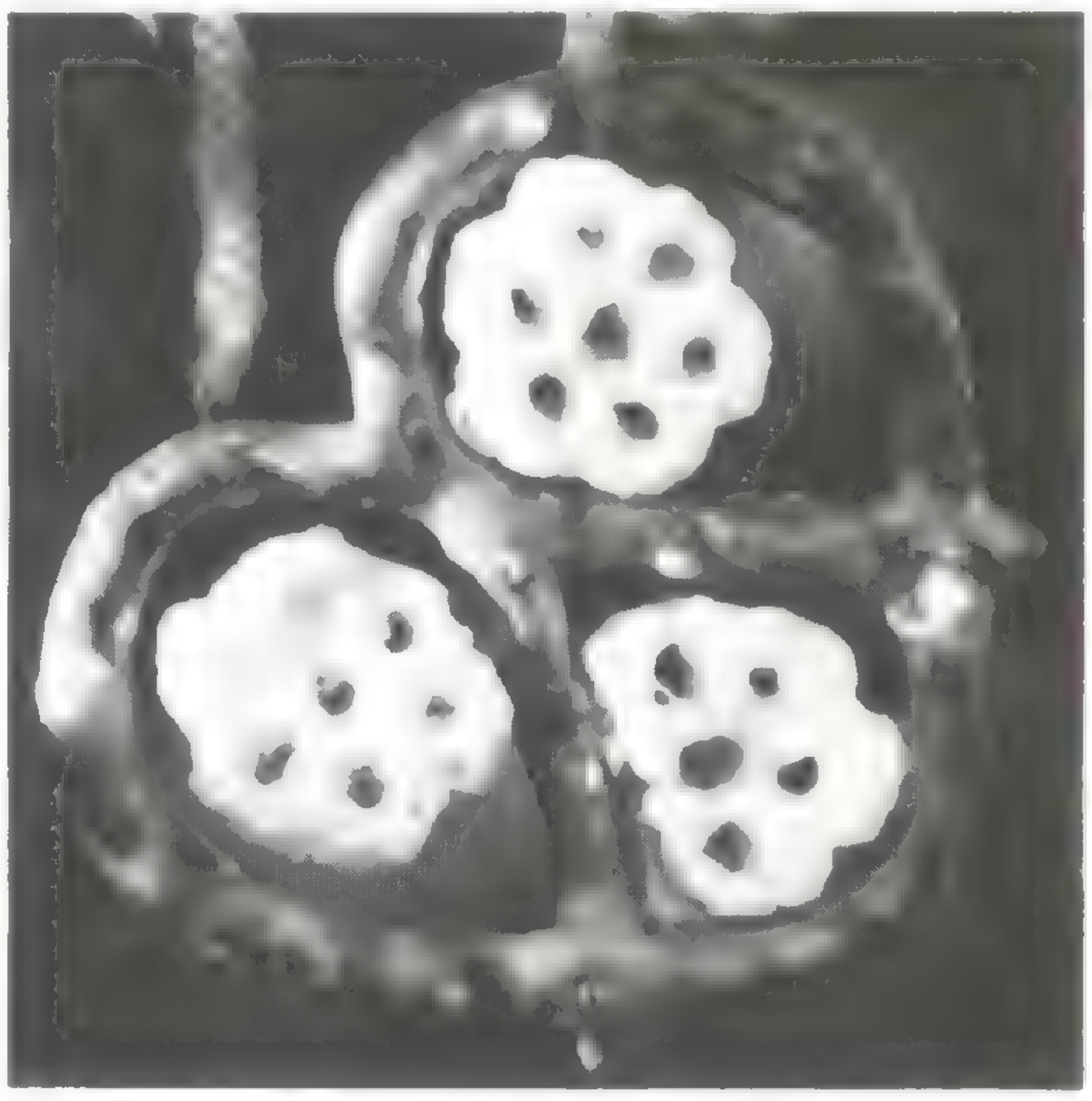
The holiday ended with a hot wine punch of ale, sugar, spices and roast apples. There was dancing and singing and revelry that, according to the tradition, had to continue until the large bowl of wine punch was empty.

In searching the archives of the Missouri Botanical Garden library, it was found that Henry Shaw, the Garden's founder, celebrated the holidays as was the custom of his time. There were invoices to him for one boned-turkey, (at $7.00), twenty-five and one-half gallons of wine — Cavignan (at $2.00 per gallon), five and one-half dozen oysters (50¢ per dozen), one dozen lemons (forty cents), eleven gallons of beer (40¢ per gallon) and two kegs of beer ($2.00 per keg), seventy-one loaves of bread (total $5.55), twelve pounds of tea — ten of Assam and two of Orange Pekoe — ($9.30 total), fifty-four more loaves of bread (ten cents per loaf) and two cakes (25¢ total); and other invoices for raisins, currants, fruits and nuts.

> *. . . I was going to wish you a happy **New Year** but it will be an old story before you get it, or don't you follow the custom of "Merry Christmas" and "Happy New Year" in your part of the country, oh! how I wish you were here to help me eat a piece of **plumb cake** for you must know our tastes have so far degenerated that we have lost our wish for **plumb pudding** . . . what merry times they have in England about Christmas . . .*

> *Shaw's sister, Sarah, writing him from Pittsford, New York, January 2, 1831*

If you visit Tower Grove House, the restored Victorian country home of Henry Shaw, during this December, you could taste the richness of a holiday as Dickens described it. The one-hundred, thirty-one year old home will be faithfully decorated with authentic Victorian trimmings. The walls and stairways will be draped with greens; there will be evergreen wreaths in the downstairs' windows. In the two Italian marble fireplaces of the first-floor twin parlors, there will be Yule logs like those Victorian men would have brought home from the woods on December 24. From the chandelier in the main hall, there will be hung a Kissing Ball. There will be a Christmas tree with candles in its branches. Unfortunately, because of fire laws, neither the Yule logs nor the candles on the tree may be lit.



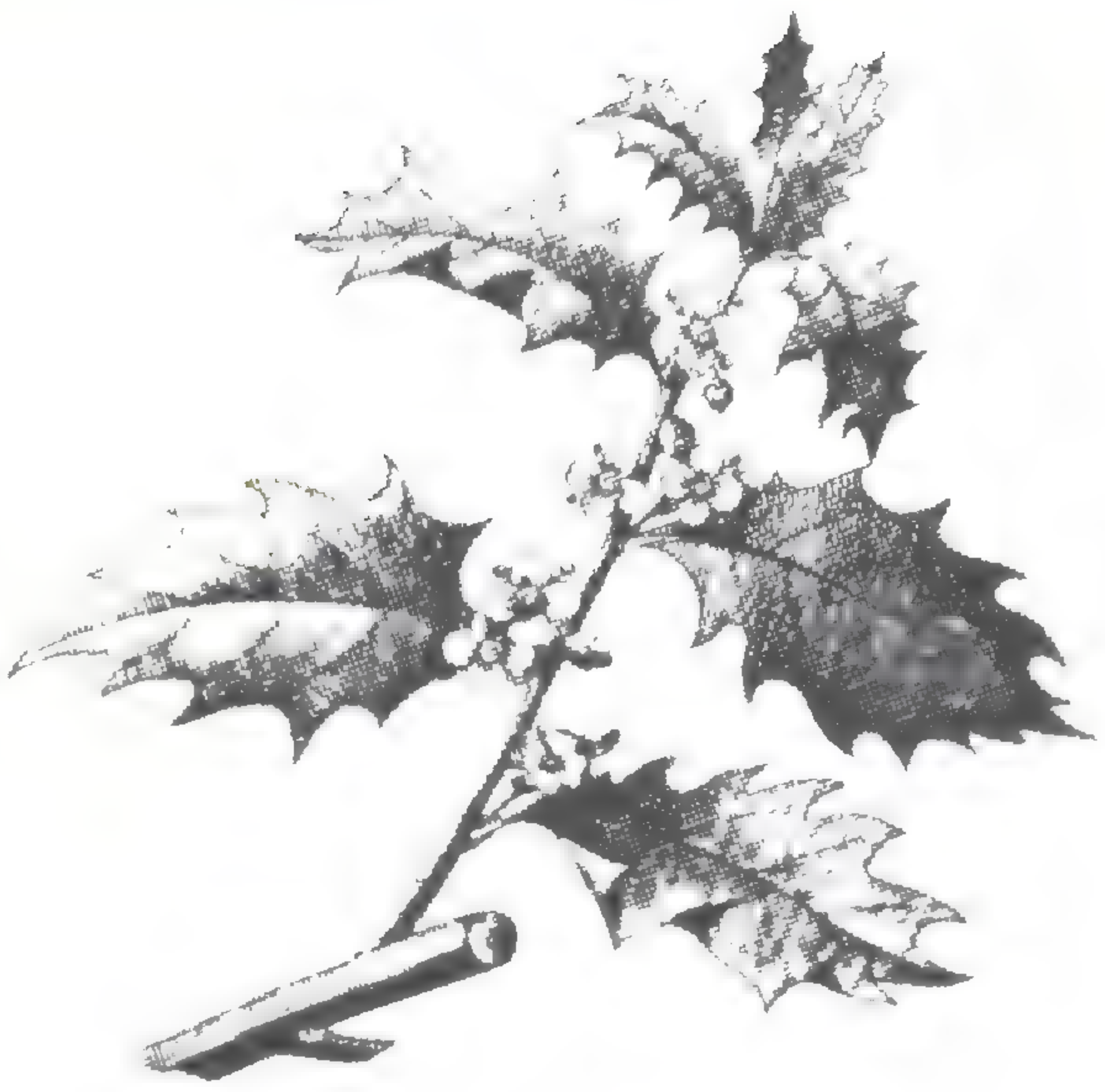
The scents of Victorian homes during the holidays are present as well; the herbs, the spices and fresh fruits. As well the refreshments, for on December 10, 12, 15, 17 and 19, visitors to the House are invited to eat and drink as would have visitors to the homes of Dickens' people, or visitors to the House when Mr. Shaw occupied it. Hot *bouillion chablis,* a wassail bowl, coffee, herb tea and Christmas breads will be served between 11:00 a.m. and 1:00 p.m. There will be a slight charge for the refreshments.

Tower Grove House will be closed on December 8 to be prepared for the Holidays and will reopen, greens draped, wreaths hung, holly and mistletoe arranged on December 9. The holiday continues until December 28; the hours of the House in December are 10:00 a.m. until 4:00 p.m. For information, please call 577-5150.

Holly — A Winter Treasure

Our often severe St. Louis winter climate imposes many restrictions on the winter displays in our gardens. None is probably greater than our inability to successfully cultivate a wide range of broad-leaved evergreen trees and shrubs, so valued as ornamentals in more climatically favored temperate gardens. The extensive use, for example, of variegated evergreens in British gardens adds both light and color during the damp, drab days of winter. Evergreens add a sense of permanence and establishment to garden design and hence we should endeavor to at least consider the merits of those broad-leaved evergreens suitable for our climate. Probably no group is more valuable than the hollies (Ilex), a factor that has encouraged us to extend our representation of these plants at the Garden.

Growing immediately northwest of the mausoleum grounds are several excellent mature specimens of the American Holly, *Ilex opaca*. This situation is sheltered from cutting winds and the morning sun in winter, factors that, when combined with a cool soil, appear to be ideal for this native Missouri species. The dense upright habit, pale bark and deep-green leaves punctuated profusely with scarlet berries all combine in making the mature female American Holly one of the most stunning plants for the landscape. It is important to remember that all hollies have sexes on different plants and that in order to produce berries, one must have a female plant and a male plant within pollinating distance. The American Holly is an extremely variable species, individuals differing markedly in foliage and fruiting characteristics — thus one should, where possible, select named clones. Many of the more desirable can be seen growing in the Garden either adjacent to the mausoleum or immediately north of the Administration Building at the south end of the garden. A selection of the most desirable clones would include the male 'Jersey Knight' and females 'Miss Helen', 'Chief Paduke' and 'Manig'.



In contrast to some other winter fruiting ornamentals, holly berries are less palatable to birds and tend to be ignored until little else is available, serving therefore as an emergency ration for wildlife — an added reason for planting hollies. Long lateral growths can be pruned back for Christmas decorations, and any necessary pruning should be considered formative in nature.

"A broad-leaved evergreen which should be planted in every garden is the Inkberry (*Ilex glabra*), one of the most attractive of native shrubs." This statement by Ernest H. Wilson, Keeper of the Arnold Arboretum of Harvard University, is as valid today as in 1926 when it was written. Wilson also comments that at that time it was, because of its origin, despised by nurserymen, an observation that is also true today. In a landscape the Inkberry forms a neat rounded specimen in an open situation, can be used for mass screening or background plantings, and makes an excellent hedge. We have used this species as a formal background hedge around the small entrance garden of our Japanese Garden. A selection of the species, *Ilex glabra* 'Compacta', a dwarf female clone with lighter branching and foliage is especially valuable for the home landscape. The leaves of the Inkberry are oblong and terminally rounded, dark green and lustrous above, and lacking prickles. In the wild, it occurs in coastal swamps and bordering salt marshes along the eastern seaboard, spreading by underground stems — the only holly to sucker in this manner. It responds well to all forms of pruning and is the hardiest holly for local planting.

The Japanese holly, *Ilex crenata*, is a close relative of the North American Inkberry and has been used much more extensively as an ornamental. In habit, the species forms a stiff rounded bush consisting of short dense branches bearing small, rounded lustrous, dark green leaves. The berries are, like the Inkberry, black, but largely inconspicuous beneath the dense foliage. It has many uses in gardens, such as foundation planting, hedges or as an individual specimen. In Japan, many of the distinct clones are used throughout the traditional gardens and in our own Japanese Garden an excellent hedge of the clone 'Convexa' with its distinct glossy leaves runs the entire length of the two dry landscape gardens. Many selections, differing in growth habit and foliage have been made from this most variable and ornamentally attractive holly.

No discussion, however brief, on hollies suitable as winter ornamentals for the St. Louis area would be complete without mention of two North American native deciduous species, the Winterberry, *Ilex verticillata*, and the Possumhaw, *Ilex decidua*. Both form a somewhat nondescript rounded shrub, but their massed production of scarlet fruits which last well into winter and are spectacular when viewed against snow, make these hollies among the finest of all berried ornamentals. The Winterberry is especially tolerant of wet situations, while the Possumhaw is more adapted to alkaline soils. Heavy fruiting selections are available of both species. 'Warren's Red' is an especially excellent form of Ilex decidua.

Visitors to the Shaw Arboretum during November and December should not fail to enjoy the spectacular winter display of *Ilex decidua* immediately south of the Visitors Center — a sight that surely gives credence to the words of the Christmas Carol that "The holly bears a berry as bright as any flower . . ."

— John Elsley,
Superintendent of
the Japanese Garden

Board Approves Changes In Membership Benefits

The Executive Board of the Members unanimously approved revisions in Garden Membership benefits at their September 8 meeting. All changes will go into effect on January 1, 1981.

A $25.00 FAMILY MEMBERSHIP will offer maximum opportunity for members of your immediate family to enjoy the Garden throughout the year. The Family Membership benefits include:

- Free admission to the Garden, Tower Grove House and to Shaw Arboretum for yourself, your spouse and all children under 21.
- **The Bulletin** which is published six times a year and includes a schedule of activities and events at the Garden and Shaw Arboretum as well as horticultural advice written especially for the St. Louis area.
- 10% discount on purchases at the Plant Shop, the Gate Shop and on registration fees for Education courses.
- Special Members-only parties, lectures and activities scheduled throughout the year including opening night previews of flower shows.
- Member trips especially designed by Garden staff to explore public and private gardens around the world.

Supporting Members, those who make an annual Membership contribution greater than the minimum of $25 as a way of sustaining the Garden and supporting its programs, will be provided special benefits. In appreciation of their gift, Supporting Members will receive guest privileges. A Supporting Member can bring any number of guests to the Garden throughout the year free of charge. Other benefits include:

- CONTRIBUTING MEMBERS ($50) receive all the benefits of Family Membership plus guest privileges, and invitations to two exclusive receptions preceding flower show openings.
- SUSTAINING MEMBERS ($100) receive all of the benefits of Contributing Membership plus a $10.00 gift certificate from the Plant Shop.
- SPONSORING MEMBERS ($250) receive all of the benefits of Sustaining Membership plus a $10.00 gift certificate from The Garden Gate Shop.
- DIRECTOR'S ASSOCIATES ($500) receive all of the benefits of Sponsoring Membership and participate in the annual Director's Associates tour of the Garden which is scheduled each spring.
- HENRY SHAW ASSOCIATES ($1,000 or more) by their example provide leadership in support of the Garden. Henry Shaw Associates receive all the benefits provided other membership categories. In addition, an annual recognition dinner is held for Henry Shaw Associates at which leadership awards are presented.

In addition, The Executive Board of the Members approved the establishment of an Organizational category of membership which provides benefits appropriate to the needs of groups, clubs and other organizations.

You will be hearing more about the membership revisions in the January/February issue of the Bulletin. If you wish further information, please call 577-5118.

— Lise Barr,
Executive Secretary,
Office of the Members

Member's Survey

During the summer, two hundred members, selected at random, were interviewed to determine their attitudes toward the garden and its possible participation in the Zoo-Museum Tax District. The results of those interviews, and interviews with nine hundred non-members, have been compiled into a report of 395 pages. The report details not only attitudes toward the Garden but economic and sociological information about those interviewed.

Through the results we learned much about our members. First, one-half of them earn their principal income as executives or professionals; one-quarter are retired. Their median age is 55, as one-half are older than 55 and one-half are younger. They reside in all parts of the city and county and have generally lived in the St. Louis area for more than thirty years. Ninety percent of our members grow plants; sixty percent have a vegetable garden.

Three-quarters of our members have attended college and one-quarter have a graduate degree.

We learned that seventy percent have visited the Garden more than ten times and that members living in the city visit us slightly more often than do those living in the county. One-half of our members have visited the Shaw Arboretum in Gray Summit; some visit there regularly.

The two primary reasons our members specified for visiting us are one, to attend special shows and, two, just to enjoy the Garden. According to the response, the most important facet of our work is education.

Our members are knowledgeable about Garden finances. Over half realize we operate within a very tight budget. They understand that we rely heavily on private contributions and that we receive funds from the Henry Shaw estate and from the Arts and Education Council. However, one-half are uncertain whether we receive funds from the Zoo-Museum Tax District. We do not, but hope to in the future. The response shows that members do support that idea.

Very importantly, we learned from the non-members surveyed that they depend on our members for information about us and that it is the opinions of our members, as well as those of the staff, that they would most respect regarding our participation in the Zoo-Museum Tax District. In fact, support of our members as representatives of the Garden could be decisive when we have the opportunity to hold a public referendum for the Tax District.

— Richard Daley,
Special Assistant to the Director

Fall Lecture Series

The Fall Lecture Series, *A World of Gardens*, continues during November. On November 5, John E. Elsley, Superintendant of the Japanese Garden, presents the Gardens of England. On the 12th, Vice President of the New York Botanical Garden Carlton B. Lees discusses Gardens of the Mediterranean; and Margaretta J. Darnall, Assistant Professor in the

Washington University School of Architecture, talks about Gardens of America on November 19. All three dates are Wednesdays; each lecture is presented twice, at 10:30 a.m. and at 8:00 p.m. on the scheduled day in the Auditorium of the John S. Lehmann Building. Members are admitted free and may bring guests.

Two Special Holiday Gifts

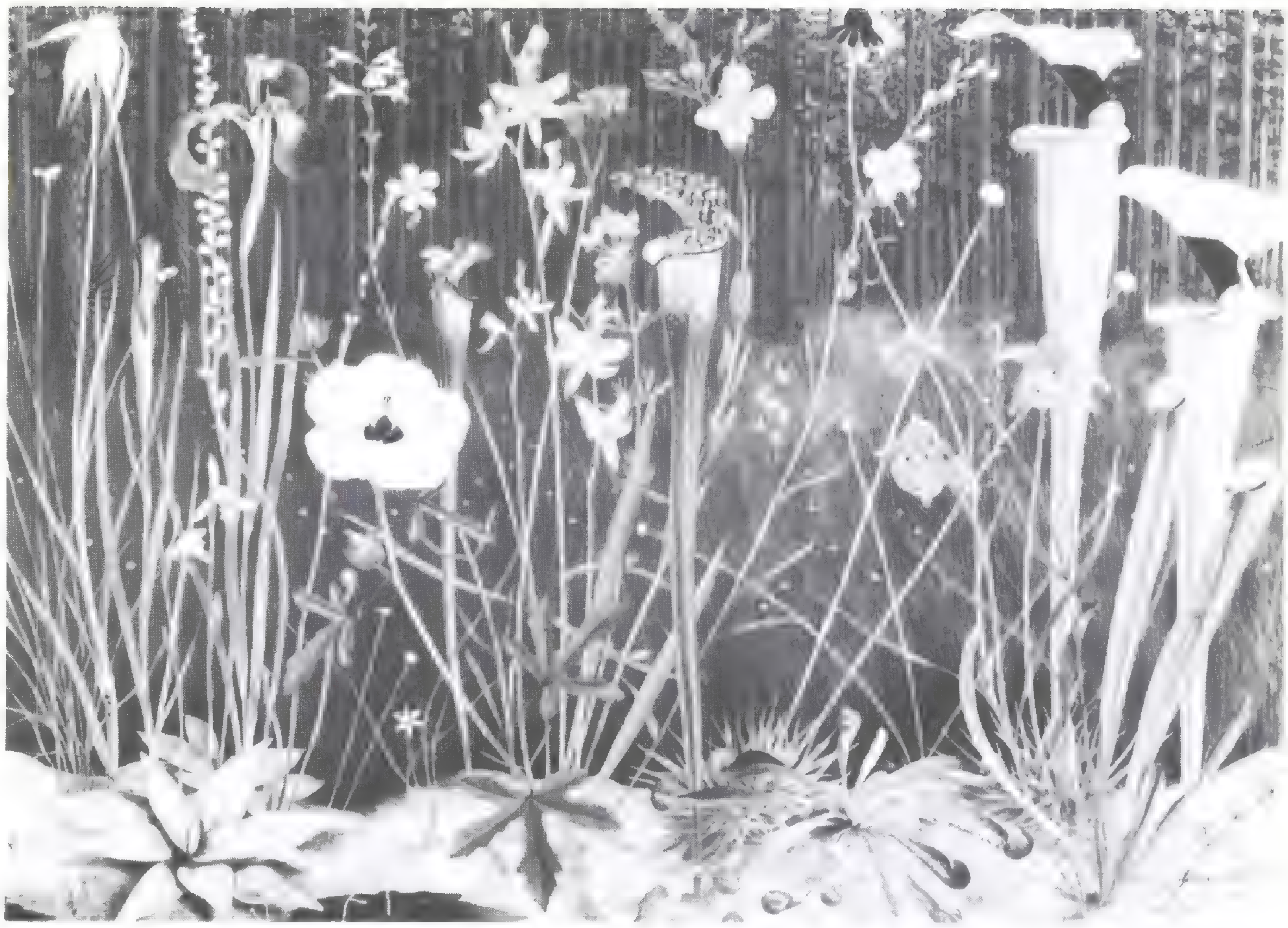
As the Holiday season approaches, remember the gift of Garden Membership. Membership in the Garden brings enjoyment all year long. Members receive free admission to the Garden, Tower Grove House and Shaw Arboretum; a subscription to the *Bulletin;* discounts at the Garden Gate and Plant Shops and invitations to a variety of programs and activities throughout the year.

In addition, the recipient of a gift Membership will receive a Christmas Cactus — a timely reminder of your thoughtfulness and generosity. Garden Membership costs $25.00. You may order gift Memberships by calling 577-5118.

In the March/April issue of the *Bulletin,* we described the Prairie Project which the Shaw Arboretum has undertaken. Through this project, we are endeavoring to preserve a part of the American heritage, the tallgrass prairie.

Through a gift contribution to the Prairie Project in the name of a friend, or in your own name, you could be giving a gift which will endure — the gift of this part of our heritage to future generations. For gift contributions of $25.00 or more, the person in whose name it is made will receive *The Tallgrass Prairie – The Inland Sea,* by Patricia Duncan, a 113 page book with 104 color photographs and a description of the seasons, the plants, and the animals of the tallgrass prairies. For further information, please call 577-5138.

As a special offer to our members the Garden Gate Shop is offering Holiday greeting cards showing an attractive color photograph of Tower Grove House, $2.50 per box of 20; two boxes for $5.00 and a third box free; regularly $3.50 per box.



"Wildflowers of the Southern Pinelands," one of the four signed framed prints available from the Keith West series Wildflowers of North America. *During December, all four are offered at a special price of $50.00 each to members while supply lasts. At the Garden Gate Shop.*

The Garden At Yuletide

The Victorian Holiday at Tower Grove House is only one of several events you might enjoy at the Garden during November and December.

On November 5 and 6, the Garden Gate Shop will have its annual Holiday Preview Sale. Members receive a fifteen percent discount on all purchases on those two days. The Shop will feature new holiday decorations and gifts. Refreshments will be served to shoppers. During the Preview, the Shop will be open from 10:00 a.m. to 8:00 p.m.

On December 1 through 24, the Plant Shop will hold its annual Holiday Plant Sale. Members receive a twenty percent discount on all purchases. In addition to foliage plants, during the sale the Shop will feature poinsettias, camellias, cyclamen, azaleas, Christmas Cactus, Norfolk Island Pines and Paperwhite Narcissus and Amaryllis bulbs. There will also be a selection of tropical plants.

The Plant Shop will award a Norfolk Island Pine as first prize in a drawing on December 19. Members may enter the drawing, at no charge, each time they make a purchase between December 1 and 18. Second prize will be a poinsettia.

Coffee will be served free to all shoppers during December.

The Holiday Plant Exhibit will open on the patio of the Climatron on December 6. We'll have poinsettias, Christmas Cactus, Christmas Peppers, Kalanchoe and other seasonal plants. The exhibit continues through December 24.

1981 Garden Tours

We have planned another year of interesting tours for Garden Members. The tours will feature private and public gardens, both domestic and foreign. Each tour is designed especially for the Garden and will be led by an expert from the Garden staff.

February — Baja California, led by Ken Peck, Manager of Instructional Services. The tour will take you from the magnificent mountains to the sparkling Pacific, through the agricultural coastal plain and into the wilderness of the desert. Special attention will be given to the local flora, such as the lofty boojums and the unique elephant trees.

March — Hawaii, led by Steven Frowine, Chairman of Indoor Horticulture. The tour will feature the outer islands, including several private gardens on the islands of Hawaii and Kauai, and a stay on the imcomparable island of Maui. Of course you'll spend time on Oahu with an opportunity to visit the Polynesian Cultural Center and to enjoy more of the breathtaking beauty only Hawaii has to offer.

In May, Alan Godlewski leads members to the Pacific Northwest; and in October, John Elsley takes them to England. More on these two tours, later.

November 1980

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 Medicinal Plants Exhibit (through November 30)
2	3	4	5 Garden Gate Shop Holiday Preview Sale 10:00 a.m.-8:00 p.m Lecture: Gardens of England 10:30 a.m. & 8:00 p.m. John Elsley	6 Garden Gate Shop Holiday Preview Sale 10:00 a.m.-8:00 p.m.	7	8
9	10	11	12 Lecture: Gardens of the Mediterranean 10:30 a.m. & 8:00 p.m. Carlton Lees Vice President New York Botanical Garden	13	14 Preview Orchid Sale	15 Orchid Sale
16	17	18	19 Lecture: Gardens of America 10:30 a.m & 8:00 p.m Margaretta J. Darnall	20	21	22
23 30 Last Day for Medicinal Plants Exhibit	24	25	26	27 Thanksgiving	28	29

December 1980

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 Holiday Plant Sale — Plant Shop (through December 24)	2	3 Chanukah	4	5	6 Holiday Plant Exhibit — Climatron
7	8 Tower Grove House closed for decoration — reopen December 9	9 Victorian Holiday — Tower Grove House (through December 28)	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24 Last day for Plant Sale and Holiday Plant Exhibit	25 Christmas Day — Missouri Botanical Garden Closed	26	27
28 Last day for Victorian Holiday at Tower Grove House	29	30	31 New Year's Eve			

PROFILE

W. Ashley Gray III, Curator of Purple Martins

W. Ashley Gray III's involvement with purple martins at the Garden began on Volunteer Evening in the Rose Garden. He and his wife Charla, a member of the Members' Executive Board, were touring the Garden. "I noticed two eight-family martin houses and saw that they were in a poor place and in disrepair. I told that to Dr. Raven and said that it was a shame, as pretty as the rest of the Garden was, that the martin nesting area was in such poor shape. I told him that someone ought to take the project in hand and bring this small facet up to the standards of the rest of the Garden." A short time later, Dr. Raven appointed him the Curator of Purple Martins. Mr. Gray laughs recalling that incident, but he is in earnest in his work to bring purple martins to the Garden.

The purple martin is a swallow, the largest swallow in fact, and as its name implies, purple. "So purple, it often looks black" says Mr. Gray. It is a migratory bird, wintering in the Amazon Valley in Brazil, and returning north in early spring. It feeds on flying insects, primarily mosquitoes; an adult consumes an estimated 2,000 mosquitoes each day. Some experts, however, claim that figure is too conservative and say it is five times that number — 10,000 a day.

"They catch their food by flying around, darting in the air with their mouths open," says Mr. Gray. "That's why the houses needed to be moved. There was not enough space for the birds to fly and swoop."

During this winter, he will remove the houses from their present location and clean them and repair them. In mid-February, the houses will be installed in a better, more open location — 200 yards directly north of the Japanese Garden. At that time, stops will be put into the holes in the houses. "To keep out the sparrows," says Mr. Gray, "because once sparrows become entrenched in the houses it is difficult to attract the martins. The sparrows fight them off."

In about late-February or early-March, the first martins should arrive in the area. These will be the scouts of the flock, searching for homes. When the scouts are seen, the stops in half the holes will be removed and egg shells placed at the bases of the houses. The egg shells attract the birds. When it appears that several pairs are interested in nesting in the houses, the other half of the stops will be removed to attract more martins.

Mr. Gray's own interest in purple martins comes from the time he spent watching them when he was young on his parents' farm in Pike County. He has a martin house in his own yard in Manchester, Missouri, where several pairs of martins nest during that part of the year they are in the north. "I'm not an expert on martins, but I enjoy them," he says.

If he is successful in bringing a small flock of purple martins to the Garden, we'll be able to enjoy them as well.

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Letter From China

(Continued from Page 3)

the Arnold Arboretum of Harvard University, The New York Botanical Garden and the U.S. National Arboretum in Washington, D.C.

They were departing for three months of field work in the western part of Hubei province in southwestern China, including the region where the dawn redwoods (*Metasequoia*) were first discovered by Chinese foresters in 1942. The dawn redwoods are the graceful trees that line the eastern inside of the John S. Lehmann Building at the Garden. Our trees were planted from seed obtained by a joint University of California-Arnold Arboretum expedition in 1947. They are now over 110 feet tall.

This new Sino-American expedition back to the area where these trees were discovered was a particularly thrilling event, since it has been approximately 25 years since *any* foreign scientists have carried out field studies of plants or animals in the People's Republic of China. We are delighted to have played a role through the Botanical Society of America in making the present expedition possible.

Starting in the latter part of 1981, five of the Chinese scientists who accompanied this expedition to Hubei will be coming individually to different institutions in the United States for periods of a year or more. The Missouri Botanical Garden will be one of the institutions where they will study. We hope that expeditions will now be conducted every summer in China and in the United States and that what we have begun during the past few years will be the start of an important and mutually beneficial scientific interchange.

. . . (Next issue: an expedition to Mount Omei)

Medicinal Plant Exhibit

Before there was Lederle and Searle and Upjohn, there was the doctrine of signatures. This doctrine held that a certain plant was identified with a part of the human body and therefore helpful in healing that particular organ or part. For example, bloodroot purged bad blood from the system, heartsease cured a sick heart, liverwort was beneficial for the liver.

In our culture, we have advanced beyond signatures, but plants and herbs still remain major sources of medicines. Digitalis, a cardiac stimulant, is derived from the dried leaves of the common foxglove. The controversial drug, laetrile, which some claim to be a cure for cancer, is derived from the kernel of the apricot. Reserpine, which is useful in the treatment of hypertension and mental disorders, comes from the root of *rauwolfia serpentina* (dogbane). The botany of rauwolfia was originally described by Robert Woodson during the 1950's while he was associated with the Garden.

Signatures, digitalis, reserpine, laetrile, and other drugs and curative potions are the topics in the Medicinal Plant Exhibition which opens at Missouri Botanical Garden on November 1, 1980. There will be three principal exhibits and other, lesser exhibits spread throughout the Garden. The primary exhibits, located in the lobby of the Lehmann Building, include a historical overview of the medicinal plants, beginning with the doctrine of signatures; a multi-media exhibit prepared by the St. Louis College of Pharmacy concerning trees as sources of drugs; and an exhibit of Missouri's Contribution to Medical Botany. Medicinal herbs will also be displayed.

The exhibition continues until November 30, 1980.

News Notes

1981 IMS Grant

Dr. Peter H. Raven, Director of Missouri Botanical Garden, was pleased to announce that the Garden was awarded a $35,000 grant from the Institute of Museum Services. The grant will be used for general operating support during 1981.

The Garden was one of 405 institutions awarded funds by the I.M.S. for 1981; I.M.S. received 1,500 applications for the grants.

Mrs. Lee Kimche, Director of the Institute, said "General Operating Support grants are the most valuable type of grant a museum can receive since they are applied towards the basic services that museums provide — education, conservation, security, exhibitions and outreach programs."

Arthur Dye Resigns

Arthur Dye, Assistant Director of the Garden for Development, resigned his position, effective October 31, 1980. He will be relocating in North Carolina where he will be an independent consultant for development and fund raising for non-profit organizations, primarily those engaged in community action programs. At the Garden he was responsible for fund raising and promotional activities.

35th AHS Congress

In September, the American Horticultural Society held its 35th Annual Congress in St. Louis, co-sponsored by the Missouri Botanical Garden.

As part of the Congress, A.H.S. members toured the Garden, and three private gardens — those of Mr. and Mrs. Robert Forbes (a one and one-half acre oriental-style garden, using native Missouri plant material), Mr. and Mrs. Henry G. Keeler, Jr. (a small, personal garden with several fountains and formalized vegetable and herb gardens) and Mrs. John S. Lehmann (a ten acre garden with a fruit orchard, vegetables, and roses).

Dr. Mildred Mathias, an alumna of Washington University and Missouri Botanical Garden, was awarded the A.H.S. Liberty Hyde Bailey Medal, the Society's highest honor. The Bailey Medal was presented to Dr. Mathias for her distinguished career as a botanist, which has included the authorship of 173 catalogued works, the executive directorship of the American Association of Botanical Gardens and Arboreta, and the Los Angeles Times Woman of Achievement Award. She has had two plants, *Sciadotenia mathiasiana* and *Lycaste mathiaslae,* and one genus, *Mathiasella bupleuroides,* named for her. UCLA's botanical garden is also named for her.

New Chairman Of Education

Judy Studer joined the staff of Missouri Botanical Garden as Chairman of the Education Department on October 16. She had previously been Director of Program Development at Coro Foundation, Midwestern Center.

As Chairman of the Education Department, she will assist in course development, act as liaison between the Garden and community schools, and supervise the educational programs.

"I think the Garden can make a significant contribution to the community," she said, "by bringing a variety of people together to learn here. A visit to the Garden can become an educational experience for everyone: the tourist, the casual visitor, as well as the student and the serious botanist. I think that can be accomplished — that all who visit here learn something about botany and ecology and about how we relate to those sciences. It can be done outside the classroom as well as within."

Orchids In November

Two important events pertaining to orchids will occur during November. On November 15, an orchid sale will be held in the greenhouse area (head house) from 10:00 a.m. until 4:00 p.m., or until the inventory is depleted. Prices will begin at $5.00 (for the corsage type orchid — *Catteyas*). There will also be various unusual species and those from the genera *Laelia,*

First Alfred And Priscilla Saxdal Award

The first Alfred and Priscilla Saxdal Trophy was presented to Richard Horbelt of Granite City, Illinois during the Men's Garden Clubs' Fall Show on September 20, 1980. Mr. Horbelt was honored for his 1980 All-America Rose entry, Cherish, a pink florabunda developed by Jackson and Perkins Co. of Medford, Oregon.

The Saxdal Award, which will be presented annually to the best All-America Rose entry, is named in honor of Alfred and Priscilla Saxdal, both former employees of the Garden. Alfred joined the staff here in 1963 as Rose Grower and later became Superintendent of Grounds, in 1971. Priscilla came to the Garden in 1963, as a volunteer and became a full-time staff member in 1969. Mr. Saxdal retired in 1977; Mrs. Saxdal, a year later. Both remain as volunteers and live on the grounds of the Garden.

Richard Horbelt (left), Alfred Saxdal, Priscilla Saxdal, and Rose Society President, James Hess.

Epidendrum, Lycaste, Maxillaria and others. For those unfamiliar, but interested in growing and caring for orchids, there will be free information sheets. Experts from St. Louis orchid societies and horticulturists from the Garden will be available to answer questions. Proceeds from the sale will be used to purchase new plants to improve the Garden's collection. A preview sale will be held Friday, November 14, from 7:00 p.m. until 9:00 p.m. A $10.00 contribution is required to attend and funds collected will be used to purchase a new orchid display case which will be installed on the patio of the Climatron.

The second event in November will be the publication of a new edition of *Orchids of Panama*, a one volume work describing 500 species of orchids which occur in that country. Originally published in 1946 and 1949 as part of the larger work, *Flora of Panama*, and reprinted as a section of that same work in 1965, *Orchids of Panama* is the only comprehensive treatment of this incredibly rich orchid flora. The new, 1980 edition will also contain an appendix listing all the orchids known to occur in Panama, about 800.

The volume may be ordered from the Garden Gate Shop; Missouri Botanical Garden; P.O. Box 299; St. Louis, MO 63166, U.S.A. The price is $28.95, postpaid. Orders should be prepaid; a $1.00 fee will be added to orders requiring invoicing.

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